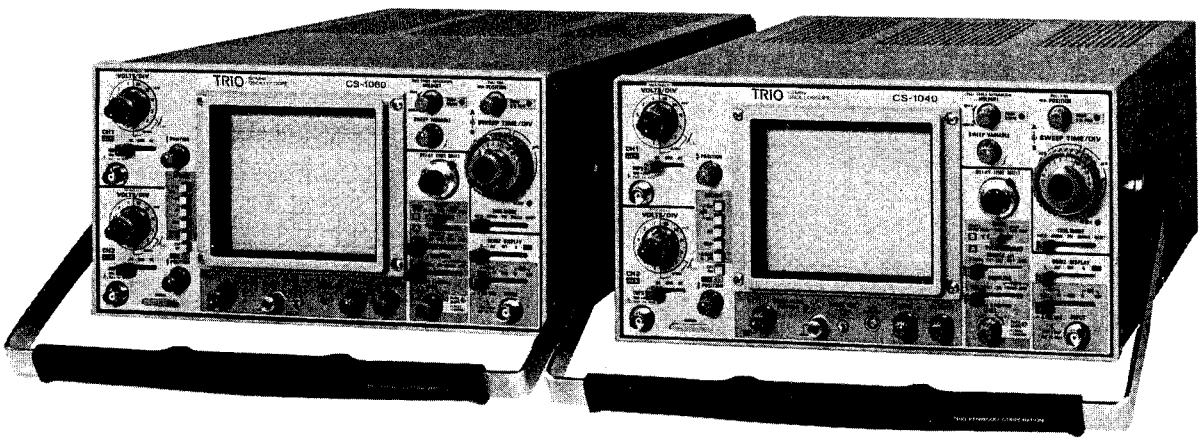
CS-1060
CS-1040
(TRIPLE TRACE OSCILLOSCOPE)



TRIO

SPECIFICATIONS

	CS-1060	CS-1040
CRT	150HTM31 Rectangular, with internal graticule	150JTM31 Rectangular, with internal graticule
Acceleration Voltage	16 kV	12 kV
Display Area	8 × 10 div (1 div = 10 mm)	
VERTICAL AXIS	**CH1 and CH2**	
Sensitivity	1 mV/div to 5 V/div, ±3%	
Attenuator	12 steps, 1 mV/div to 5 V/div in 1-2-5 sequence. Vernier control for fully adjustable sensitivity between steps.	
Input Impedance	1 MΩ ±2%, approx 20 pF	
Frequency Response		
5mV/div to 5V/div	DC; DC to 60 MHz, −3 dB AC; 5 Hz to 60 MHz, −3 dB	DC; DC to 40 MHz, −3 dB AC; 5 Hz, to 40 MHz, −3 dB
1 mV/div, 2 mV/div	DC; DC to 20 MHz, −3 dB AC; 5 Hz to 20 MHz, −3 dB	DC; DC to 15 MHz, −3 dB AC; 5 Hz to 15 MHz, −3 dB
Rise Time	5.8 nsec or less (60 MHz) 17.5 nsec or less (20 MHz)	8.8 nsec or less (40 MHz) 23.4 nsec or less (15 MHz)
Signal Delay Time	Approx.20 nsec on the CRT screen	
Crosstalk	−40 dB minimum	
Operating Modes	CH1; single trace CH2; single trace ADD; CH1 + CH2 added as a single trace DUAL; CH1 and CH2, dual trace TRIPLE; CH1, CH2 and CH3 triple trace ALT; dual trace or triple trace, alternating CHOP; dual or triple trace, chopped	
Chop Frequency	Approx. 250 kHz	
Channel Polarity	Normal or inverted, channel 2 only inverted	
⚠ Maximum Input voltage	500 Vp-p or 250 V (DC + AC peak)	
Non-Distorted Maximum Amplitude	More than 8 div (DC to 60 MHz)	More than 8 div (DC to 40 MHz)
VERTICAL AXIS	**CH3**	
Sensitivity	0.1 V/div and 1 V/div ±3%	
Input Resistance	1 MΩ ±2%	
Input Capacitance	Approx 27pF	
Frequency Response	DC: DC to 60 MHz, −3 dB	DC: DC to 40 MHz, −3 dB
	AC: 5 Hz to 60 MHz, −3 dB	AC: 5 Hz to 40 MHz, −3 dB
Rise Time	5.8 nsec or less	8.8 nsec or less
Signal Delay Time	Same as CH1 and CH2	
⚠ Maximum Input Voltage	50 V (DC + AC peak)	
HORIZONTAL AXIS	**Input thru CH2,** × 10 MAG not included	
Operating Modes	With HORIZ DISPLAY switch, X-Y operation is selectable CH1; Y axis CH2; X axis	
Sensitivity	Same as vertical axis (CH2)	

SPECIFICATIONS

		CS-1060	CS-1040
Input Impedance		Same as vertical axis (CH2)	
Frequency Response		DC; DC to 1 MHz, −3 dB AC; 5 Hz to 1 MHz, −3 dB	
X-Y Phase Difference		3° or less at 100 kHz	
⚠ Maximum Input Voltage		Same as vertical axis (CH2)	
SWEEP			
Type		A; A sweep ALT; A sweep (intensified for duration of B sweep) and B sweep (delayed sweep) alternating INT; Duration of B sweep is displayed as an intensified portion of A sweep. B; Delayed sweep X-Y; X-Y oscilloscope	
Sweep Time	A	0.05 μs/div to 0.5 s/div, ±3% in 22 ranges, in 1-2-5 sequence. Vernier control provides fully adjustable sweep time between steps.	0.1 μs/div to 0.5 s/div, ±3% in 21 ranges, in 1-2-5 sequence. Vernier control provides fully adjustable sweep time between steps.
	B	0.05 μs/div to 50 ms/div in 19 ranges, in 1-2-5 sequence.	0.1 μs/div to 50 ms/div in 18 ranges, in 1-2-5 sequence.
Sweep Magnification		×10 (ten times) ±5%	
Linearity		±3% all ranges, ±5% on 0.05 μs/div to 0.1 μs/div range at ×10 MAG.	
Holdoff		Continuously variable from NORM to more than ten times (MAX)	
Trace Separation		B sweep can be separated from A sweep up to 4 divisions, continuously adjustable.	
Delay Method		Continuous delay (STARTS AFTER DELAY), Trigger delay (TRIG), Zero delay (DELAY TIME ZERO)	
Delay Time		From 500 nsec to 0.5sec. Available delay time is 0.2 to 10 times the A sweep time setting, continuously adjustable.	
Time difference measurement accuracy		±2%	
Delay Jitter		1/20000 of ten times of A sweep time setting	
TRIGGERING			
Trigger mode		AUTO, NORM, FIX, SINGLE	
Trigger source		V.MODE; Trigger selected by vertical MODE switch. CH1; Triggered by CH1 signal CH2; Triggered by CH2 signal CH3/EXT; Triggered by CH3 signal LINE; Triggered by line voltage	
Coupling		AC, HFrej, DC, VIDEO FRAME, VIDEO LINE	
Trigger sensitivity		FREQ.RANGE / INT / EXT	FREQ.RANGE / INT / EXT
	DC	DC −60 MHz / 1 div / 0.1 Vp-p	DC −40 MHz / 1 div / 0.1VP-P
	AC	Same as for DC but increased minimum level below 10 Hz	
	AC, HF rej	Increased minimum level below 10 Hz and above 20 kHz	
	VIDEO	FRAME, LINE / 1 div / 0.1 Vp-p	FRAME, LINE / 1 div / 0.1 Vp-p
		AUTO: Same as above specifications for above 50 Hz. FIX: Same as above specifications for above 50 Hz.	

SPECIFICATIONS

	CS-1060	CS-1040
PROBE ADJ. VOLTAGE	0.5 V, ±6%, square wave, positive polarity, approx 1 kHz	
INTENSITY MODULATION		
Sensitivity	TTL compatible positive voltage increases brightness, negative voltage decreases brightness.	
Input Impedance	Approx. 10 kΩ	
Usable Frequency Range	DC to 5 MHz	DC to 3.5 MHz
⚠ Maximum Input Voltage	50 V (DC + AC peak)	
VERTICAL AXIS SIGNAL OUTPUT	CH1 OUTPUT	
Output Voltage	Approx. 50 mV/div into 50 Ω	
Output Impedance	Approx. 50 Ω	
Frequency Response		
5 mV/div to 5 V/div	100 Hz to 60 MHz, −3 dB into 50 Ω	100 Hz to 40 MHz, −3 dB into 50 Ω
1 mV/div, 2 mV/div	100 Hz to 20 MHz, −3 dB into 50 Ω	100 Hz to 15 MHz, −3 dB into 50 Ω
GATE OUTPUT		
Output Voltage	TTL compatible	
Output Impedance	Approx. 220 Ω	
SWEEP OUTPUT		
Output Voltage	1 Vp-p	
Output Impedance	Approx. 1 kΩ	
POWER REQUIREMENT		
Power Supply	100 V/120 V/220 V/240 V ±10%	
Line Frequency	50/60 Hz	
Power Consumption	Approx. 65 W	
DIMENSIONS (W × H × D)	304(346) × 160(173) × 401(461) mm ( ) dimensions include protrusion from basic outline dimensions	
WEIGHT	Approx. 11 kg	
ENVIRONMENTAL		
Within Specifications	10°C to 35°C, 85% max. relative humidity	
Full Operation	0°C to 50°C, 90% max. relative humidity	
ACCESSORIES SUPPLIED		
Probe	PC-29.....2	PC-20....2
Spare Fuse	2 A.....2 1 A.....2	
Operators Manual	1	

* Circuit and rating are subject to change without notice due to developments in technology.

STANDARD ACCESSORIES INCLUDED

Probe (PC-20) Y87-1840-00
- Attenuation.....1/10, 1/1
- Input Impedance
  - 1/10 .....10 MΩ, 18pF or less
  - 1/1 .....1 MΩ, 100pF or less

Probe (PC-29) Y87-1250-00
- Attenuation 1/10
- Input Impedance.....10 MΩ, 18pF or less

Instruction Manual.....B50-7510-00

Replacement Fuse
- 2 A F05-2023-05
- 1 A F05-1023-05

OPTIONAL ACCESSORIES

Probe Pouch (MC-78).....Y87-1600-00

Service Manual B51-1034-00

SPECIFICATIONS

CRT 150HTM 31 SPECIFICATIONS (150JTM31 for CS-1040)

Screen and Shape

Dimensions;

Overall length;	310 ± 7 mm (300 ± 7 mm)
Face plate dimensions;	149 ± 3 mm
Screen shape;	Rectangular flat face, internal graticule, metal back
Deflection and focusing system;	Electrostatic deflection, electrostatic focusing and post-deflection acceleration
Color;	Green
Persistence;	Medium short
Useful display area	Y axis.....80 mm X axis.....100 mm

Heating

Heater voltage	6.3 V
Heater current	95 mA

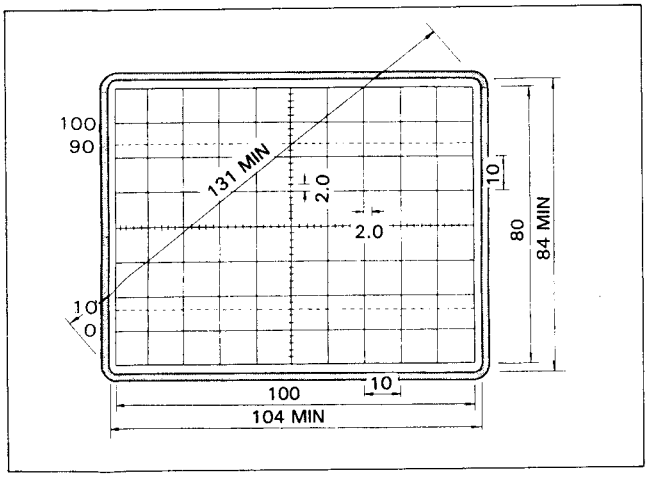


Fig. 1 Graticule

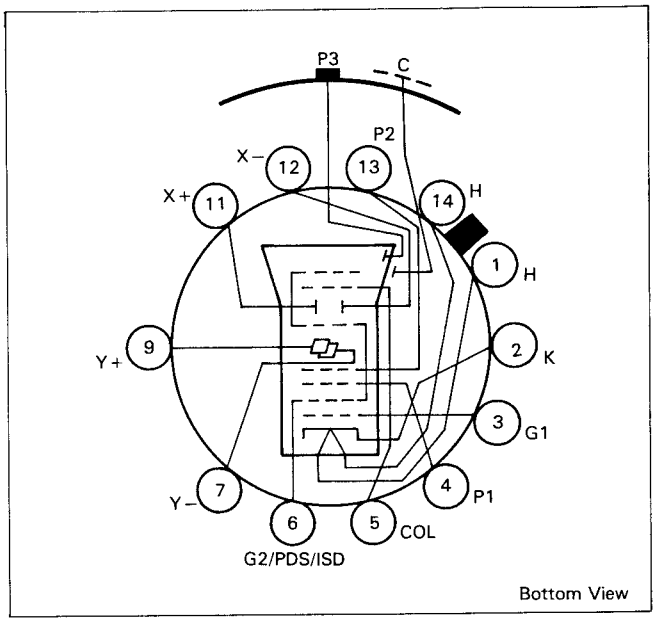


Fig. 2 150HTM31 Basing

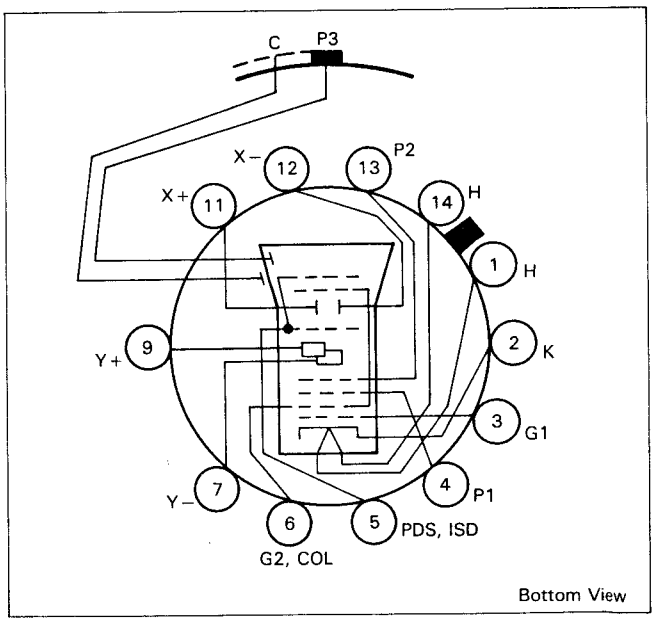


Fig. 3 150JTM31 Basing

SAFETY

SAFETY

Before connecting the instrument to a power source, carefully read the following information, then verify that the proper power cord is used and the proper line fuse is installed for power source. The specified voltage is shown at the left side of the power cord on the rear panel. If the power cord is not applied for specified voltage, there is always a certain amount of danger from electric shock.

Line voltage

This instrument operates using ac-power input voltages that 100/120/220/240 V at frequencies from 50 Hz to 60 Hz.

Power cord

The ground wire of the 3-wire ac power plug places the chassis and housing of the oscilloscope at earth ground. Do not attempt to defeat the ground wire connection or float the oscilloscope; to do so may pose a great safety hazard. The appropriate power cord is supplied by an option that is specified when the instrument is ordered.
The optional power cords are shown as follows in Fig. 4.

Line fuse

The fuse holder is located on the rear panel and contains the line fuse. Verify that the proper fuse is installed by replacing the line fuse.

Voltage conversion

This oscilloscope may be operated from either a 100 V to 240 V, 50/60 Hz power source. Use the following procedure to change from 100- to 240 volt operation or vice versa.

1. Remove the top section of case.
2. Unplug the leadwire of the voltage selector P37 located on the connection unit (X77-1300).
3. Reinsert it for appropriate voltage range.
4. Replace fuse F 1 with a fuse of appropriate value, 2 amp for 100 VAC to 120 VAC operation, 1 amp for 220 VAC to 240 VAC operation.
5. When performing the reinsertion of leadwire for the voltage conversion the appropriate power cord should be used. (See Fig. 4.)

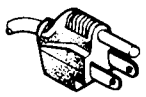
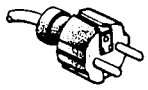
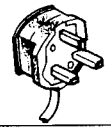
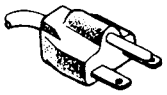
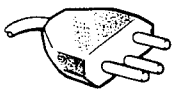
Plug configuration	Power cord and plug type	Factory installed instrument fuse	Line cord plug fuse	Parts No. for power cord and plate
	North American 120 volt/60 Hz Rated 15 amp (12 amp max; NEC)	2 A, 250 V Fast blow AGC/3AG	None	Cord: E30-1854-05 Plate: J21-2985-04
	Universal Europe 220 volt/50 Hz Rated 16 amp	1 A, 250 V Fast blow 5 x 20 mm	None	Cord: E30-1852-05 Plate: J21-2984-04
	U.K. 240 volt/50 Hz Rated 13 amp	1 A, 250 V Fast blow 5 x 20 mm	1 A Type C	—
	Australian 240 volt/50 Hz Rated 10 amp	1 A, 250 V Fast blow 5 x 20 mm	None	Cord: E30-1853-05 Plate: J21-2983-04
	North American 240 volt/60 Hz Rated 15 amp (12 amp max; NEC)	1 A, 250 V Fast blow AGC/3AG	None	—
	Switzerland 240 volt/50 Hz Rated 10 amp	1 A, 250 V Fast blow AGC/3AG 5 x 20 mm	None	—

Fig. 4 Power Input Voltage Configuration

CIRCUIT DESCRIPTION

VERTICAL ATTENUATOR UNIT

The CS-1060/1040's attenuator unit includes attenuators, ×5 amplifier, and preamplifier. First attenuator immediately comes after the AC-GND-DC selector switch and second attenuator follows impedance conversion. First attenuator provides attenuations of 1/1, 1/10, and 1/100, and the second of 1/1, 1/2, and 1/5. In impedance conversion, the input signal is separated into high- and low-frequency components and the high-frequency components are converted by Q3 and the low-frequency are converted by U1.

The ×5 amplifier comprises U2c/d and Q7, 8, operating only when the 1 mV/div and 2 mV/div ranges are selected. The preamplifier comprises U2a/b and Q9, 10 and amplifies the output signal of the attenuator. supplying the resulting signal to the preamplifier unit. In this stage, VARIABLE ATT (VR5, 6) permits to vary gain continuously.

VERTICAL PREAMPLIFIER UNIT

The vertical preamplifier unit comprises three preamplifiers which amplify signals channel 1 and channel 2 coming from the attenuator unit and signal channel 3 coming from the sweep unit; vertical mode selector which switches the signals; and the output amplifier which delivers the selected signal to the vertical final amp unit.

The preamplifier of channel 1 comprises Q1, 2 of the POSITION circuit and Q3-5, Q12 and Q13 of the cascode amplifier. The signals developing at the emitters of Q3 and Q4 pass through emitter followers Q6 and Q7 before getting output as signal channel 1 trigger signal via Q8 and as channel 1 output signal via the channel 1 output circuit of Q9-11 and D3.

Similarly, the preamplifier of channel 2 comprises Q21, 22 of the POSITION circuit and Q23-25 and Q30-32 of the cascode amplifier which is provided with the capability of CH2 INV. The signals developing at the emitters of Q23 and Q24 pass through Q26-29 before getting output as X-Y and channel 2 trigger signals.

The vertical mode selector switches channels by driving Q47-49 according to the Enable signal supplied from the vertical mode logic of the trigger unit. The selected signal passes emitter followers Q61, 62 and go out through the output amplifier of Q64-67. The output amplifier includes U2 and Q63 which keep the operating level of Q61, 62 fixed and the vertical mode trigger output circuit comprising Q68, 69 and D31, 32.

Preamplifier of channel 3 comprises Q41-46 of cascode amplifier.

VERTICAL FINAL AMPLIFIER

The vertical signal comes from the vertical preamplifier to the final amplifier via a delay line. The final amplifier comprises grounded-base Q1, 2 and two stages of cascode amplifiers, Q3-6 and Q7-10. The output of the amplifier is connected to the Y-deflection plate of the CRT. The final amplifier also includes U1 and D1, 2 which keep the operating level fixed, eliminating adjustment.

VERTICAL MODE LOGIC

The vertical-MODE switch signal and the horizontal display signal both enter the vertical mode logic, one from the vertical preamplifier unit and the other from the sweep unit. The logic comprises U8c/d, U5a, and D18 of the chop signal generator; U3b and U5b of the divider during horizontal display ALT mode; and U4, U6, U7a/b/d, and U8b generating the Enable signal, and controls vertical mode.

TRIGGER SIGNAL GENERATOR

Output trigger singals of channel 1, channel 2 and vertical mode coming from the vertical preamplifier unit and channel 3 and line coming from the sweep unit, one is selected by the trigger source selection circuit comprising S1, Q1-3, and D1-6 and again by the trigger coupling selection circuit comprising S2a/b and Q4-6. For ordinary signal, the trigger amplifier of Q16-19 amplifies the selected trigger signal, the Schmitt circuit of U11a/b shapes its waveform, and U11c selects SLOPE. the trigger level is controlled by varying the base leve of Q17, with U9b and Q7 driven by the signal supplied from VR7a. At FIX, the outputs of Q9 and D12, 13 determine the level.

For video signal, on the other hand, the video synchronization circuit comprising Q10-15, Q59, U9a, D7, 8, D11, and D14 separates the sync signals which are output as trigger signals after U12b has shaped the waveform. The trigger signal, selected by U12a/c/d, is delivered to the sweep unit.

BLANKING CIRCUIT

The A-blanking and B-blanking signals coming from the sweep unit enter the blanking control circuit via Q20, 21 and Q58. The blanking control circuit comprises U1a/c, U2a/b/c, U3a, U5c/d, U7c and U8a. The logic singal formed of the HORIZ DISPLAY switch and blanking signals drives Q22-24 to control the collector current of Q26 and generate the output signal to the blanking amplifier.

U1d, U2c, Q29-32, and Q57 form the trace separation circuit which controls the vertical position of B-sweep when selected HORIZ DISPLAY switch to ALT.

The input singal to the blanking amplifier varies also with INTENSITY control and the outputs of Q25 and of the external intensity modulation circuit comprising Q28 and D19, 20. The blanking amplifier consists of Q27 and Q33-40. The amplified signal is, after added with a high dc voltage by the dc regenerating circuit of D31-36, sent to the CRT as the auto-focus and intensity signals. The dc-dc converter is formed of Q51, 52, Q55, 56, and U10b.

CIRCUIT DESCRIPTION

CHANNEL 3 ATTENUATOR CIRCUIT

The channel 3 input terminal is common to the input of external trigger signal. The input signal enters the amplifier of Q1-5, Q34, and U8 via the channel 3 attenuator which selects either 0.1 V/div or 1 V/div. Channel 3 position control varied by detecting the dc signal coming from the trigger unit with U8 and driving the base of Q4. The outputs of differential amplifiers Q4-5 are delivered respectively to the trigger source selecting circuit and the channel 3 preamplifier as the channel 3 trigger signal and the channel 3 signal.

HORIZONTAL SWEEP CIRCUIT

The trigger pulse comes from the trigger control unit to the A sweep logic circuit of U1a, U2a/b, U3a, and U5a/b and to the B sweep logic circuit of U1b, U3c/d, U4, and U6. To the A/B sweep logic circuit, signals come from the holdoff circuit comprising U5c, Q16, 17, Q35, 36, and D10, the delay time generator of Q19, 20 and Q22, and the auto-free-run circuit of U2c/d, U3b, and U5d. These signals, together with the signals of trigger mode and the horizontal display logic, time the generation of the sawtooth waves which are supplied to the A/B sweep sawtooth wave generators.

The A sweep sawtooth wave generator comprises Q6-8, Q37, Q41, D4, sweep rotary switch, and R-C providing time constants out of which the rotary switch selects one. When H (high) comes from the A sweep logic, Q6 turns off and its collector voltage falls. Then Q41 turns off, the gate voltage of Q7 falls, and Q7, 8 turn off. As a result, the capacitor selected with the sweep rotary switch begins to get charged, with a sawtooth wave generated. When the voltage across the capacitor rises to a certain level, the sweep stop circuit of Q9, 10 inverts flip-flop U5a/b to stop sweep.

B sweep is performed similarly. The sawtooth wave generator of Q11-13, Q38, and Q42, the sweep stop circuit of Q14, 15 and flip-flop U6a/b cooperate to generate a sawtooth wave.

U7b/c is a flip-flop working for single sweep (sweep will be performed only once after getting reset). U7a and Q33 drive the READY LED.

A/B-SWEEP AND X-Y SELECTION CIRCUIT

The A/B sweep and X-Y selection circuits, comprising Q18, Q23-28, Q40, and D11, switches the sawtooth waves generated by the A/B sweep sawtooth wave generators and the X signal of the channel 2 preamplifier. During A sweep, D11 turns off according to signal QB and Q23 turns on so that the sawtooth wave of A sweep is output from emitter follower Q26. During B sweep (or X-Y) mode, Q18 and Q40 turns off and signal comes from Q24 and Q25. Q27 controls the emitter currents of Q23 and Q24 to move horizontal position.

HORIZONTAL FINAL AMPLIFIER UNIT

The horizontal signal comes from the A/B sweep and X-Y selection circuits to the horizontal final amplifier comprising Q41-50, which amplifies the signal before applying to the X deflection plate of the CRT. Q43, 44 are FET switches which are on during ×10 MAG mode to raise gain to ten times.

HIGH-VOLTAGE BLOCK

(*applies to the CS-1040.)

The acceleration voltage of the CRT is 16 kV (*12 kV). The converter transformer and the high-voltage rectification circuit are contained in the high-voltage block sealed with resin for safety. The ouptuts of the high-voltage block are −1.75 kV dc (applied to the cathode), 6.3 V ac (for the CRT's heater), and 14 kV (*10.5 kV) (applied to the anode for acceleration).

PROBE CALIBRATION VOLTAGE GENERATOR

The probe calibration voltage generator is mounted on the connection unit and comprises U1a and D1-3.

The trace rotation circuit, also mounted on the connection unit, drives the rotation coil to vary the declination of the trace according to the outputs of Q1, 2.

POWER SUPPLY

The voltage regulator generates varying voltages with reference to −15 V. D21 provides the reference voltage. Operational amplifier U9a compares voltages. And Q2 regulates the −20 V which D14 provides to generate −15 V.

For +5 V, a voltage divided from −15 V with resistors is applied to U10b, which drives Q4 to regulate the +9 V provided by D15. Similarly, +15 V, +50 V, and +120 V are obtained by regulating the voltages which D14, D17, and D16 have rectified respectively with U9b and Q3; U10a, Q31, and Q5; and U11, Q32, and Q6.

BLOCK DIAGRAM

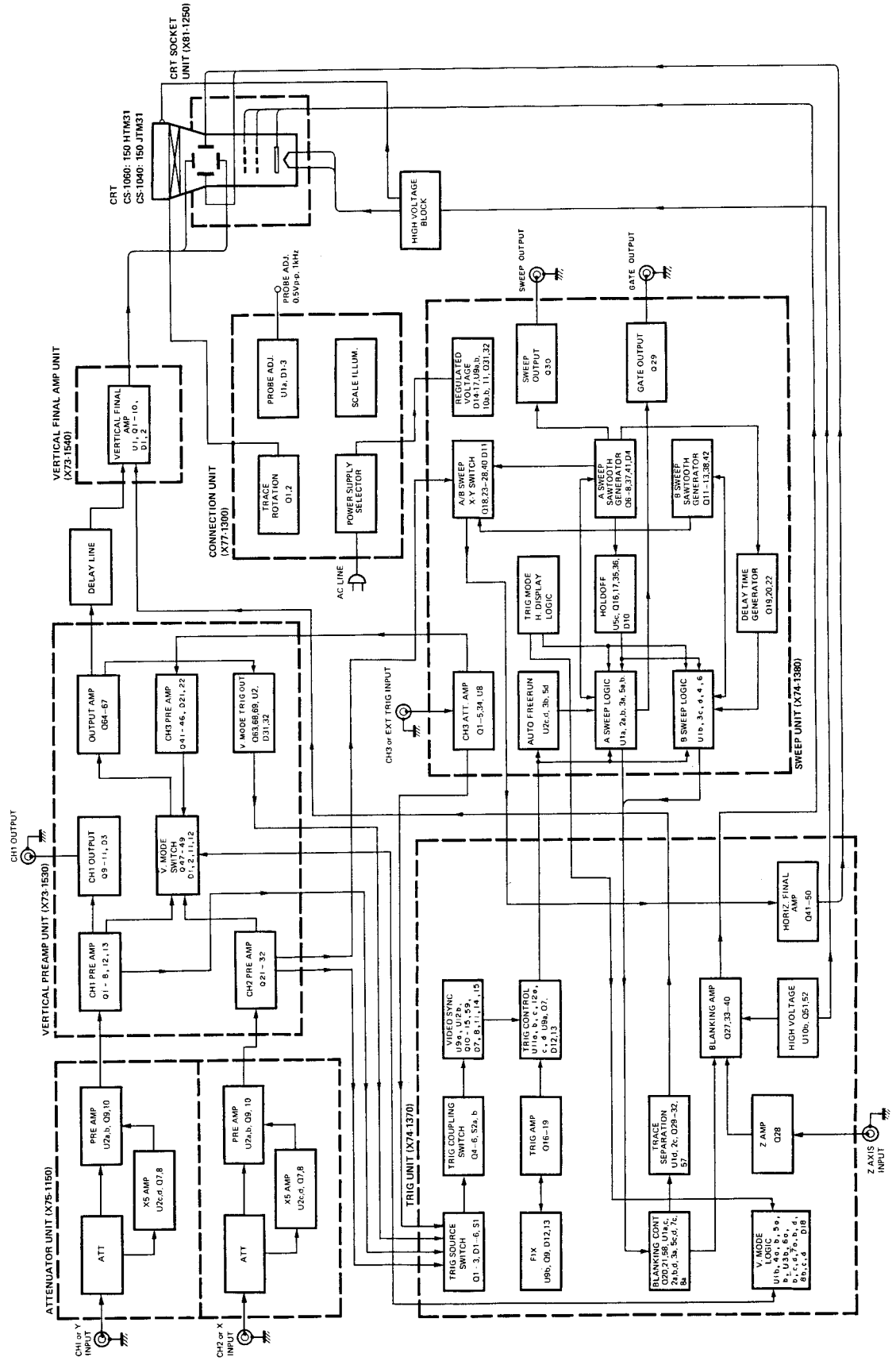

CRT SOCKET UNIT (X81-1250)
CRT CS-1060: 150 HTM31 CS-1040: 150 JTM31
HIGH VOLTAGE BLOCK
SWEEP OUTPUT
GATE OUTPUT
PROBE ADJ. 0.5Vp-p, 1kHz
VERTICAL FINAL AMP UNIT (X73-1540)
VERTICAL FINAL AMP U1, Q1 – 10, D1, 2
PROBE ADJ. U1a, D1-3
SCALE ILLUM.
REGULATED VOLTAGE D14-17,19b,b, 108,b, 11, D31,32
SWEEP OUTPUT Q30
GATE OUTPUT Q29
CONNECTION UNIT (X77-1300)
TRACE ROTATION Q1,2
POWER SUPPLY SELECTOR
A/B SWEEP X Y SWITCH Q18,23–28,40 D11
A SWEEP SAWTOOTH GENERATOR Q6–8,37,41,D4
B SWEEP SAWTOOTH GENERATOR Q11–13,38,42
AC LINE
DELAY LINE
TRIG.MODE H. DISPLAY LOGIC
HOLDOFF U5c, Q16,17,35,36, D10
DELAY TIME GENERATOR Q19,20,22
OUTPUT AMP Q64–67
CH3 PRE AMP Q41–46, Q21–22
V. MODE TRIG OUT Q63,68,69, U2, D31,32
CH3 or EXT TRIG INPUT
CH3 ATT. AMP Q1–5,34, U8
AUTO FREERUN U2c,d, 3b, 5d
A SWEEP LOGIC U1a, 2a,b, 3a, 5a,b
B SWEEP LOGIC U1b, 3c, 4, 6
SWEEP UNIT (X74-1380)
CH1 OUTPUT
CH1 OUTPUT Q9–11, Q3
V. MODE SWITCH Q47–49 D1, 2, 11, 12
VERTICAL PREAMP UNIT (X73-1530)
CH1 PRE AMP Q1 – 8, 12, 13
CH2 PRE AMP Q21 – 32
HORIZ. FINAL AMP Q41–50
VIDEO SYNC. U9a, U12b, D10–15, 59, D7, 8, 11, 14, 15
TRIG CONTROL U10a, b, c, 12a, U9a, Q7, D12,13
BLANKING AMP Q27,33–40
HIGH VOLTAGE U10b, Q51,52
PRE AMP U2a,b, Q9, 10
X5 AMP U2c,d, Q7,8
TRIG UNIT (X74-1370)
TRIG COUPLING SWITCH Q4–6, 52a, b
TRIG AMP Q16–19
TRACE SEPARATION U10d, 2c, Q29–32, 57
Z AMP Q28
Z AXIS INPUT
ATTENUATOR UNIT (X75-1150)
ATT
TRIG SOURCE SWITCH Q1–3, D1–6, 51
FIX U9b, Q9, D12,13
BLANKING CONT Q20,21,58, U1a,c, 2a,b,d, 3a, 5c,d, 7c, 8a
V. MODE LOGIC U1b, 4a, b, 5a, b, U3a, b, c, d, 6a, b, c, d, 7a, b, 8b, c, d D18
CH1 or Y INPUT
CH2 or X INPUT

Fig. 5

ADJUSTMENT

To obtain the best performance, periodically calibrate the unit. Sometimes, only one mode need be calibrated, while at other times, all modes should be calibrated. When one mode is calibrated, it must be noted that the other modes may be affected. When calibrating all modes, perform the calibration in the specified sequence.
The following calibration required an accurate measuring instrument and an insulated adjusting flat blade screwdriver. If they are not available, contact your dealer.
For optimum adjustment, turn the power on and warm up the scope sufficiently (more than 30 minutes) before starting.
Before calibrating the scope, check the power supply voltage.

TEST EQUIPMENT REQUIRED

The following instrument or their equivalent should be used for making adjustment.

Test Equipment	Model	Minimum Specification
Digital Multi-Meter	DL-706 (TRIO)	Impedance: More than 10 MΩ, Measuring range: 0.01 V to 199 V
Sine-Wave Generator	651 B (YHP)	Frequency: 10 Hz to 10 MHz, constant voltage over tuning range
Sine-Wave Generator	SG-503 (Tektronix)	Frequency: 50 kHz to 100 MHz, Output impedance: 50 Ω, constant voltage over tuning range.
Square-Wave Generator	PG-506 (Tektronix)	Output signal: 1 kHz, Amplitude: 10 mVp-p to 10 Vp-p, Accuracy: within ±1%, Rise time: 35ns or less 100 kHz, Rise time: 1 ns or less
Q Meter	4343B (YHP)	—
Color Pattern Generator	CG-911A (TRIO)	—
Oscilloscope	CS-2100A (TRIO)	Sensitivity: more than 5 mV Frequency response: More than 100 MHz
Time-Marker Generator	TG-501 (Tektronix)	Time mark: 0.5 s to 0.1μs repetive waveform
High-Voltage Probe	—	Input Impedance: 1000 MΩ
Termination	—	Impedance: 50 Ω Accuracy: within 3%
Termination	—	3 watts type impedance: 50 Ω
Attenuator	—	−20 dB attenuation (50 Ω)

Table 1

PREPARATION FOR ADJUSTMENT

Control Setting

The control setting listed below must be used for each adjustment procedure.
Exceptions to these settings will be noted as they occur.
After completing a adjustment, return the controls to the following settings.

NAME OF KNOBS	POSITION
INTENSITY	3 o'clock
FOCUS, ASTIG	Optimum position
CH1, CH2 ▲▼ POSITION	Mechanical center
◄► POSITION/PULL ×10MAG	Mechanical center, push
VARIABLE, A VARIABLE (VOLTS/DIV, SWEEP TIME/DIV)	CAL
AC-GND-DC (CH1 and CH2)	DC (GND at no signal)
Vertical MODE	CH1
CH2 POLARITY	NORM
COUPLING	AC
SOURCE	V.MODE
TRIG. LEVEL	Mechanical center, push
TRIG. MODE	AUTO
VOLTS/DIV (CH1 and CH2)	10 mV/DIV
A, B SWEEP TIME/DIV	1 ms/DIV
HOLDOFF	Fully CCW, NORM, Push
B MODE	DELAY TIME ZERO
HORIZ DISPLAY	A
CH3 AC, GND, DC	DC, 0.1 V
DUAL TRI	DUAL (▮)
DELAY TIME MULT	Optimum position

Table 2

ADJUSTMENT

POWER AND CRT ADJUSMENT

Reference voltage (+120 V) adjustment

1. Connect a dc voltmeter to measure the voltage at TP12 (X74-1380) with respect to the chassis.
2. Adjust VR7 for +120 V±1.2 V reading on the meter.

Reference voltage check

1. Connect a dc voltage to measure the voltage at P24 (X74-1380) as shown in table 1.

Pin no.	4	7	8	9
Voltage	50V±2.5V	15V±0.75V	−15V±0.75V	5V±0.25V

Table 3

2. Connect a dc voltmeter to measure the voltage at TP10 (X74-1370) using a high voltage probe and check the voltage for −1.75 kV±0.08 kV reading on the meter.

ASTIG and FOCUS adjustment

1. Select the HORIZ DISPLAY switch to X-Y position and both channel 1 and channel 2 AC-GND-DC switches to GND positions.
2. Pull the PULL ASTIG control and adjust the FOCUS control for the sharpest, roundest spot when centering the ASTIG and FOCUS controls.

INTENSITY adjustment

1. Select the HORIZ DISPLAY switch to X-Y position and both channel 1 and channel 2 AC-GND-DC switches to GND positions.
2. Adjust VR5 (X74-1370) so that the trace disappears when the INTENSITY control setting is reduced to 9:30 position.
3. Clockwise rotation should increase brightness of the trace and counterclockwise rotation should decrease brightness of the trace. Fully counterclockwise should disappear the spot.

TRACE ROTATION adjustment

1. Set the channel 1 AC-GND-DC switch to GND position.
2. Set the scope controls to display a horizontal trace with no input singal (triggering MODE switch in AUTO position).
3. Use the channel 1 position control as required to position the trace along a horizontal line of the graticule scale.
4. Adjust TRACE ROTATION control so trace is parallel with the reference line on the graticule scale.

Pattem distortion adjustment

1. Select the HORIZ DISPLAY switch to X-Y position.
2. Apply a 50 kHz sine wave signal to channel 1 input and apply a 1 kHz sine wave signal to channel 2 input to display a waveform of 8 div×8 div amplitude.
3. Adjust VR6 (X74-1370) so the vertical and horizontal bendings are less than 0.2 division.

CRT centering adjustment

1. Short the test point TP1 to TP2 on the vertical output unit (X73-1540).
2. Select auto triggering mode.
3. Adjust VR1 (X73-1540) to center the trace vertically.

VERTICAL AXIS ADJUSTMENT

Channel 1 and channel 2 dc balance adjustment

1. Set the scope controls for a single horizontal trace on channel 1 with the channel 1 AC-GND-DC switch set to GND position.
2. Rotate the channel 1 VARIABLE control from maximum clockwise to maximum counterclockwise, while observing the trace.
3. If the trace moves vertically, adjust VR4 (X75-1150) for minimum or zero vertical movement when performing step 2.
4. Rotate the channel 1 VOLTS/DIV switch through the 10 mV, 20 mV and 50 mV positions while observing the trace.
5. If the trace moves vertically, adjust VR2 (X75-1150) for minimum or zero vertical movement when performing step 4.
6. Rotate the channel 1 VOLTS/DIV switch through 1 mV and 2 mV positions while observing the trace.
7. If the trace moves vertically, adjust VR3 (X75-1150) for minimum or zero vertical movement when performing step 6.
8. Repeat the entire procedure for channel 2.

Channel 2 invert position adjustment

1. Select CH2 mode and set the channel 2 position control to its mechanical center.
2. Push the channel 2 INV push-button and adjust VR12 (X73-1530) to center the trace vertically.
3. Repeat step 1 and 2 if necessary so trace does not shift when channel 2 INV switch is alternately pushed and pushed.

Channel 2 position adjustment

1. Select CH2 mode and set the channel 2 position control to its mechanical center.
2. Adjust VR31 (X73-1530) to center the trace vertically.

Channel 1 position adjustment

1. Select CH1 mode and set the channel 1 position control to its mechanical center.
2. Adjust VR2 (X73-1530) to center the trace vertically.

Add position adjustment

1. Set the channel 1 and channel 2 position controls to their mechanical center and AC-GND-DC switches to GND positions and select the vertical MODE switch to ADD position (both CH1 and CH2 engaged).
2. Adjust VR32 (X73-1530) to center the trace vertically.

ADJUSTMENT

Vertical position readjustment

1. Set the channel 1 and channel 2 position control to their mechanical positions and AC-GND-DC switches to GND positions.
2. Select the vertical MODE switch to CH1 or CH2 position.
3. Adjust VR31 (X73-1530) to center the trace vertically and repeat the entire procedure for ADD mode adjusting VR32 (X73-1530).

100 Hz square wave compensation

1. Using a square wave generator, apply a 100 Hz square wave signal to oscilloscope input to display a waveform of 6 divisions vertical amplitude.
2. Adjust VR1 (X75-1150) for the best flat-top waveform.
3. Repeat the entire procedure for channel 2.
4. Select the vertical MODE switch to CH3 position.
5. Repeat the entire procedure, adjusting VR14 (X74-1380) for channel 3 square wave compensation.

Channel 1 gain adjustment

1. Apply a 50 mV peak to peak, 1 kHz square wave signal to channel 1 input and set the vertical MODE switch to CH1 position.
   Set the scope controls to display a square wave on the CRT screen.
2. Adjust VR34 (X73-1530) for exactly 5 divisions vertical amplitude.

CH1 OUTPUT adjustment

1. Connect the CH1 OUTPUT connector to channel 1 of test oscilloscope through a 50 ohm BNC cable.
2. Set test oscilloscope; channel 1 VOLTS/DIV for 50 mV position.
3. Adjust VR6 (X73-1530) to display a 5 divisions vertical amplitude on the test oscilloscope.

Channel 2 gain and X gain adjustment

1. Apply a 50 mV peak to peak, 1 kHz square wave signal to channel 2 input and set the vertical MODE switch to CH2, set the scope controls to display a square wave on the CRT screen.
2. Adjust VR14 (X73-1530) for exactly 5 divisions vertical amplitude.
3. Select the HORIZ DISPLAY switch to X-Y position.
4. Adjust VR16 (X73-1530) for exactly 5 divisions horizontal deflection on the CRT screen.

Channel 3 gain adjustment

1. Select the vertical MODE switch to both ALT and TRI and set triggering SOURCE switch to CH3 position.
2. Apply a 0.5 V peak to peak, 1 kHz square wave signal to channel 3 input.
3. Adjust VR22 (X73-1530) to display a waveform of 5 divisions vertical amplitude.

TRIGGERING AND CH3 POSITION ADJUSTMENT

Triggering level adjustment

1. Apply a 1 kHz sine wave signal to channel 1 input and set the scope controls to display a waveform of 8 divisions vertical amplitude.
2. Set the triggering MODE switch to FIX position.
3. Adjust VR1 (X74-1370) so the triggering is satisfactory when the amplitude is less than 1 division.

Triggering level center adjustment

1. Apply a 1 kHz sine wave signal to channel 1 input and set the scope controls to display a waveform of 8 divisions vertical amplitude.
2. Set the channel 1 position control to its mechanical center.
3. Adjust VR2 (X74-1370) to start the trace from the center of the graticule scale when rotating the triggering LEVEL control to its mechanical center.

Line triggering adjustment

1. Set the triggering SOURCE switch to LINE position.
2. Apply a line voltage (50/60 Hz) to channel 1 input.
3. Set the triggering LEVEL control to its mechanical center.
4. Adjust VR12 (X74-1380), if necessary so the trace does not shift when switching the COUPLING switch to alternately AC and DC position.

Vertical MODE offset adjustment

1. Apply a 1 kHz sine wave signal to channel 1 input and set the scope controls to start a waveform of 6 divisions vertical amplitude from the center of the graticule scale.
2. Adjust VR36 (X73-1530), if necessary so the start point of the trace does not shift when switching the COUPLING switch to alternately AC and DC positions.

Channel 1 and channel 2 offset adjustment

1. Set the triggering SOURCE switch to CH1 position.
2. Apply a 1 kHz sine wave signal to channel 1 input and set the scope controls to start a waveform of 6 divisions vertical amplitude from the center graticule scale.
3. Adjust VR5 (X73-1530), if the COUPLING switch to alternately AC and DC positions.
4. Repeat the entire procedure for channel 2, adjusting VR15 (X73-1530).

Channel 3 offset and position adjustment

1. Set the channel 2 VOLTS/DIV control to 0.1 V position and vertical MODE and triggering MODE switches to both CH2 positions.
2. Set the channel 3 position control to its mechanical center.
3. Apply a 1 kHz sine wave signal to channel 2 input and set the scope controls to display a waveform of 8 divi-

ADJUSTMENT

sions vertical amplitude on the center of the CRT screen.
4. Set the start point of the trace to the center with the triggering LEVEL control.
5. Select the vertical MODE switch to ALT and TRI positions and triggering SOURCE switch to CH3 position.
6. Apply a 1 kHz sine wave signal to channel 3 input and adjust VR13 (X74-1380), if necessary so the start point of the trace does not shift when switching the COUPLING switch to alternately AC and DC positions.
7. Set channel 3, AC (0.1 V, 1 V), GND, DC (1 V, 0.1 V) switch to GND position.
8. Adjust VR23 (X73-1530) to center the trace vertically.
9. Clockwise rotation should move up to 5 divisions upward and counterclockwise rotation should move up to 5 divisions downward.

VERTICAL AXIS ADJUSTMENT

Channel 1 and channel 2 waveshape compensation

1. Apply a 1 kHz square wave signal to channel 1 input and set the scope controls to display a waveform of 6 divisions vertical amplitude.
2. Adjust TC1 (X75-1150) for the best flat-top waveform when setting the channel 1 VOLTS/DIV control to 0.1 V position and TC3 (X75-1150) when channel 1 VOLTS/DIV control to 1 V position.
3. Repeat the entire procedure for channel 2.

Channel 3 waveshape compensation

1. Select the vertical MODE switch to ALT and TRI positions and triggering SOURCE switch to CH3 position.
2. Apply a 1 kHz square wave signal to channel 3 input to display a waveform of 6 divisions vertical amplitude.
3. Adjust TC2 (X74-1380) for the best flat-top waveform when switching channel 3, AC (0.1 V, 1 V), GND, DC (1 V, 0.1 V) switch from 0.1 V range to 1 V range of DC position.

Channel 1 and channel 2 input capacity adjustment

1. Rotate the channel 1 VOLTS/DIV control to 10 mV position and connect a Q meter to channel 1 input to measure the input capacity for 20pF ± 3pF.

Adjustment control	VOLTS/DIV setting
TC2 (X75-1150)	0.1 mV/div
TC4 (X75-1150)	1 V/div

Table 4

2. Repeat the entire procedure for channel 1 VOLTS/DIV control to 0.1 V position and 1 V position.
3. Repeat the entire procedure for channel 2 input capacity adjustment.

Channel 3 input capacity adjustment

1. Set the channel 3, AC (0.1 V, 1 V), GND, DC (1 V, 0.1 V) switch to DC (0.1 V) position.
2. Connect a Q meter to channel 3 input and check the input capacity is less than 27pF reading on the meter.
3. Adjust TC1 (X74-1380) for less than 27pF reading on the meter when switching the AC (0.1 V, 1 V), GND, DC (1 V, 0.1 V) switch from DC (0.1 V) to DC (1 V) position.

Channel 1 overshoot adjustment

1. Apply a 1 MHz square wave signal to channel 1 input and set the scope controls to display a waveform of 6 divisions vertical amplitude.
2. Preset the adjustment controls as follows;

VR3 (X73-1530)	counter clockwise rotation
VR2 (X73-1540)	counter clockwise rotation
TC1 (X73-1530)	mechanical center
TC31 (X73-1530)	mechanical center
VR7 (X75-1150)	mechanical center
TC7 (X75-1150)	mechanical center
TC5 (X75-1150)	mechanical center
VR3 (X73-1540)	mechanical center
TC1 (X73-1540)	mechanical center
TC2 (X73-1540)	mechanical center

3. Adjust the following controls listed in table below.

Sequence	Adj. control	Unit no.	Procedure
1	TC1, VR3	X73-1530	Mid frequency range compensation for the best flat-top waveform.
2	VR2, TC1	X73-1540	Mid and high frequency ranges compensation for the best flat-top waveform. Note; VR3 (X73-1540) to fully C.W.
3	VR3	X73-1540	High frequency range compensation for the best flat-top waveform.
4	VR7, TC7	X75-1150	High frequency range compensation for peak-top waveform.
5	VR3	X73-1540	High frequency range compensation for the best flat-top waveform.
6	VR7, TC7	X75-1150	High frequency range compensation for the best flat-top waveform.
7	TC31	X73-1530	High frequency range compensation for the best flat-top waveform.
8			Repeat the entire procedure for step 4 to 7.

Table 5

ADJUSTMENT

Channel 2 overshoot adjustment

1. Select the vertical MODE switch to CH2 position.
2. Apply a 1 MHz square wave signal to channel 2 input and set the scope controls to display a waveform of 6 divisions vertical amplitude.
3. Adjust the following controls listed in table below;

Sequence	Adj. control	Unit no.	Procedure
1	VR13, TC11	X73-1530	Mid frequency range compensation for the best flat-top waveform.
2	VR7	X75-1150	High frequency range compensation for the best flat-top waveform.
3	TC7, TC5	X75-1150	High frequency range compensation for the best flat-top waveform.

Table 6

Channel 3 overshoot adjustment

1. Select the vertical MODE switch to ALT and TRI positions and triggering SOURCE switch to CH3 position and SWEEP TIME/DIV control to any position.
2. Apply a 1 MHz square wave signal to channel 3 input and set the scope controls to display a waveform of 6 divisions vertical amplitude.
3. Adjust TC21 and VR21 (X73-1530) to the best flat-top waveform for high frequency range compensation.
4. Adjust TC4 (X74-1370) to compensate the overshoot for minimum.

HORIZONTAL AXIS ADJUSTMENT

1 ms sweep time, A and B sweep start points and MAG gain adjustment

1. Set the A and B SWEEP TIME/DIV controls to both 1 ms positions, channel 1 VOLTS/DIV control to 1 V position, B MODE switch to DELAY TIME ZERO position and HORIZ DISPLAY switch to ALT position.
2. Apply a 1 ms marker signal to channel 1 input.
3. Adjust VR1 (X74-1380) so the first and 11th time marks of A sweep coincide with graticule scale.
4. Adjust VR2 (X74-1380) so the first and 11th time marks of B sweep coincide with graticule scale.
5. Adjust VR9 (X74-1380) to coincide the start point of A sweep with that of B sweep.
6. Push the horizontal position control and check the LED lights.
7. Adjust VR3 (X74-1370) so the each time mark of A sweep coincides with graticule scale.

Mag centering adjustment

1. Set the B MODE switch to DELAY TIME ZERO, HORIZ DISPLAY switch to ALT, A and B SWEEP TIME/DIV controls to both 1 mV and channel 1 VOLTS/DIV to 1 V positions.
2. Apply a 5 ms marker signal to channel 1 input and set the scope controls to center the center of the A and B time marks (horizontal position to pushed in).
3. Adjust VR4 (X74-1370) to center the center of the A and B time marks when again pushed in horizontal position.
4. Repeat step 2 and 3.
5. The center time mark should not shift when setting the ×10 MAG switch to on.

10 ms sweep time adjustment

1. Set the B MODE switch to DELAY TIME ZERO, HORIZ DISPLAY switch to ALT, A and B SWEEP TIME/DIV controls to both 10 ms and channel 1 VOLTS/DIV control to 1 V positions.
2. Apply a 10 ms time marker signal to channel 1 input and set the scope controls to center the A and B time marks.
3. Adjust VR3 (X74-1380) to center the center of A time mark when again pushed in horizontal position control.
4. Adjust VR4 (X74-1380) to center the center of B time mark when pushed in horizontal position control.

10 μs sweep time adjustment

1. Set the B MODE switch to DELAY TIME ZERO, HORIZ DISPLAY switch to ALT, A and B SWEEP TIME/DIV controls to both 10 ms and channel 1 VOLTS/DIV control to 1 V positions.
2. Apply a 10 μs time marker signal to channel 1 input and set the scope controls to center the center of A and B time marks.
3. Adjust TC5 (X74-1380) to center the center of A time mark when pushed in horizontal position control.
4. Adjust TC6 (X74-1380) to center the center of B time mark when again pushed in horizontal position control.

Sweep linearity adjustment

1. Set the B MODE switch to DELAY TIME ZERO, HORIZ DISPLAY switch to ALT, A and B SWEEP TIME/DIV controls to both 0.05 μs and channel 1 VOLTS/DIV control to 1 V positions.
2. Apply a 0.05 μs time marker signal to channel 1 input and the scope controls to center the center of A and B time marks.
3. Adjust TC1 (X74-1370) to center the center of A and B time marks when pushed in horizontal position control.

Delay time multiplier adjustment

1. Set the B MODE switch to STARTS AFTER DELAY, HORIZ DISPLAY switch to INT, channel 1 AC-GND-DC switch to GND, A SWEEP TIME/DIV control to 0.1 ms and B SWEEP TIME/DIV control to 1 μs positions.
2. Rotate the DELAY TIME MULT control to 0.20 position and set the scope controls to coincide A trace with the left end of the graticule scale, using the horizontal posi-

ADJUSTMENT

tion control.

3. Adjust VR6 (X74-1380) to position B trace (intensified portion) to 0.2 div position.
4. Adjust VR5 (X74-1380) to position B trace to 10 div position (right end of the graticule scale) when rotated the DELAY TIME MULT control to 10.00 position.

X position adjustment

1. Select the vertical MODE switch to CH2 position and channel 2 AC-GND-DC switch to GND position.
2. Set the scope controls to display a trace to the graticule center.
3. Adjust VR8 (X74-1380) to position to trace to horizontal graticule when switching the HORIZ DISPLAY switch to X-Y position.
4. Clockwise rotation of channel 2 position control should move up to 5 divisions upward and counterclockwise rotation should move up to 5 divisions downward.

VERTICAL ATTENUATOR UNIT (X75-1150)

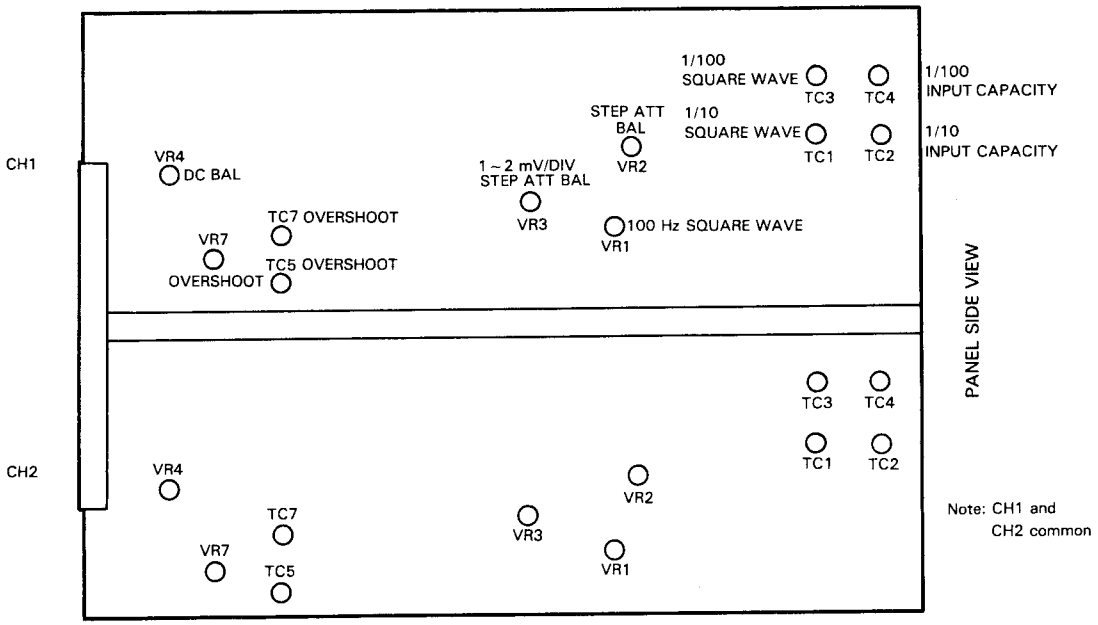


Fig. 6

VERTICAL PREAMP UNIT (X73-1530)

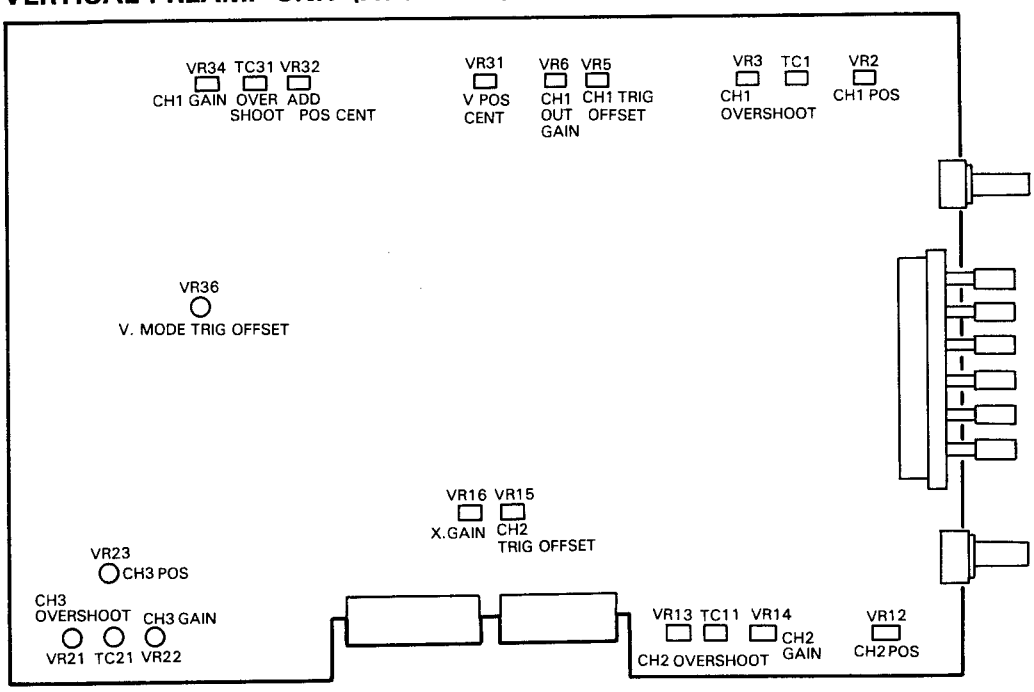


Fig. 7

ADJUSTMENT

VERTICAL FINAL UNIT (X73-1540)

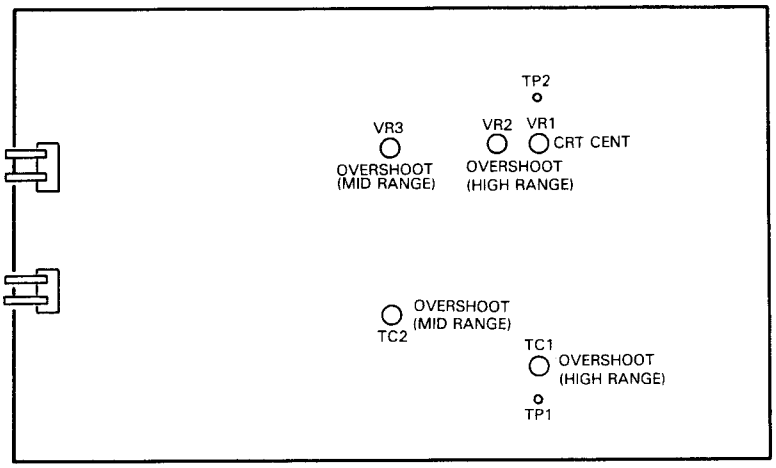


Fig. 8

SWEEP UNIT (X74-1380) TRIG UNIT (X74-1370)

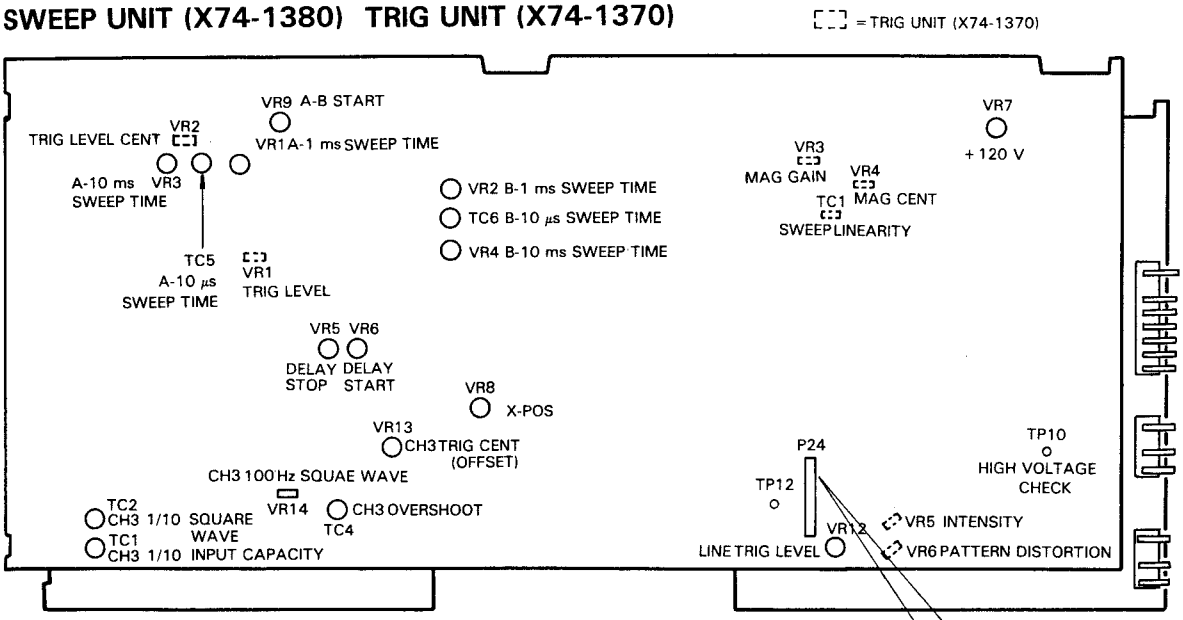
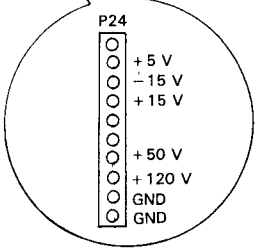
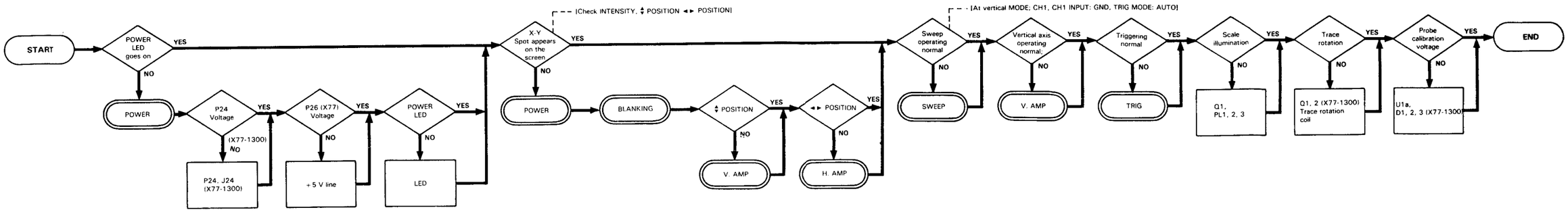


Fig. 9



TROUBLESHOOTING



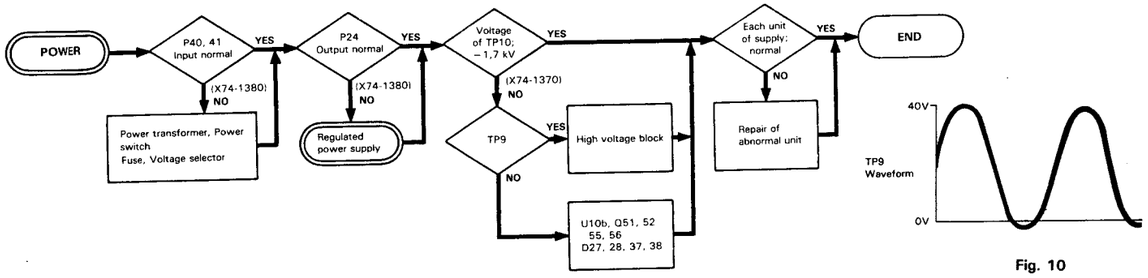


Fig. 10

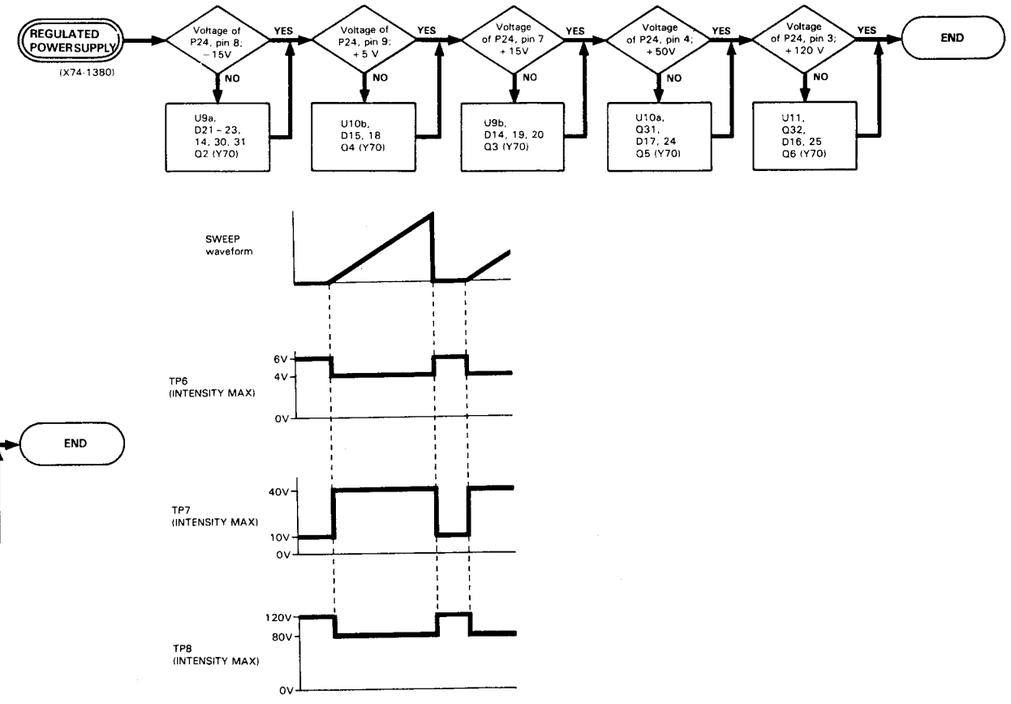
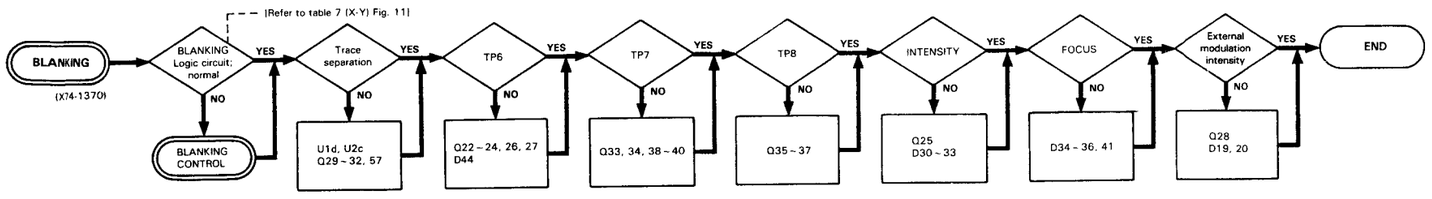
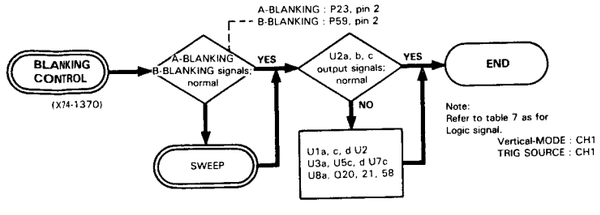


Fig. 11




A-BLANKING : P23, pin 2
B-BLANKING : P59, pin 2
BLANKING CONTROL
(X74-1370)
A-BLANKING B-BLANKING signals; normal
SWEEP
U2a, b, c output signals; normal
U1a, c, d U2 U3a, U5c, d U7c U8a, Q20, 21, 58
END
Note:
Refer to table 7 as for Logic signal.
Vertical-MODE : CH1
TRIG SOURCE : CH1

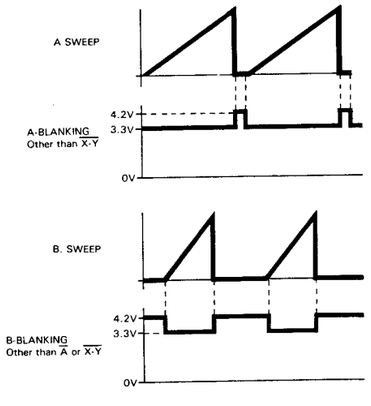


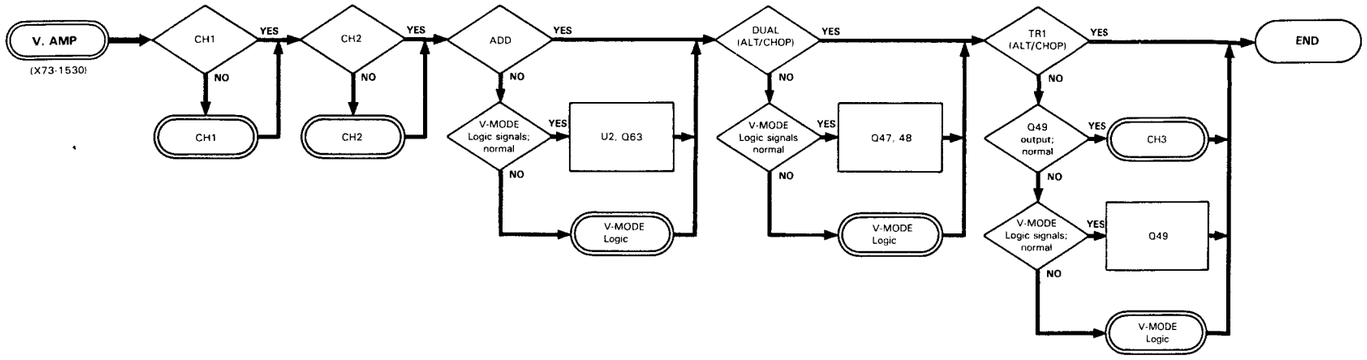
Fig. 12

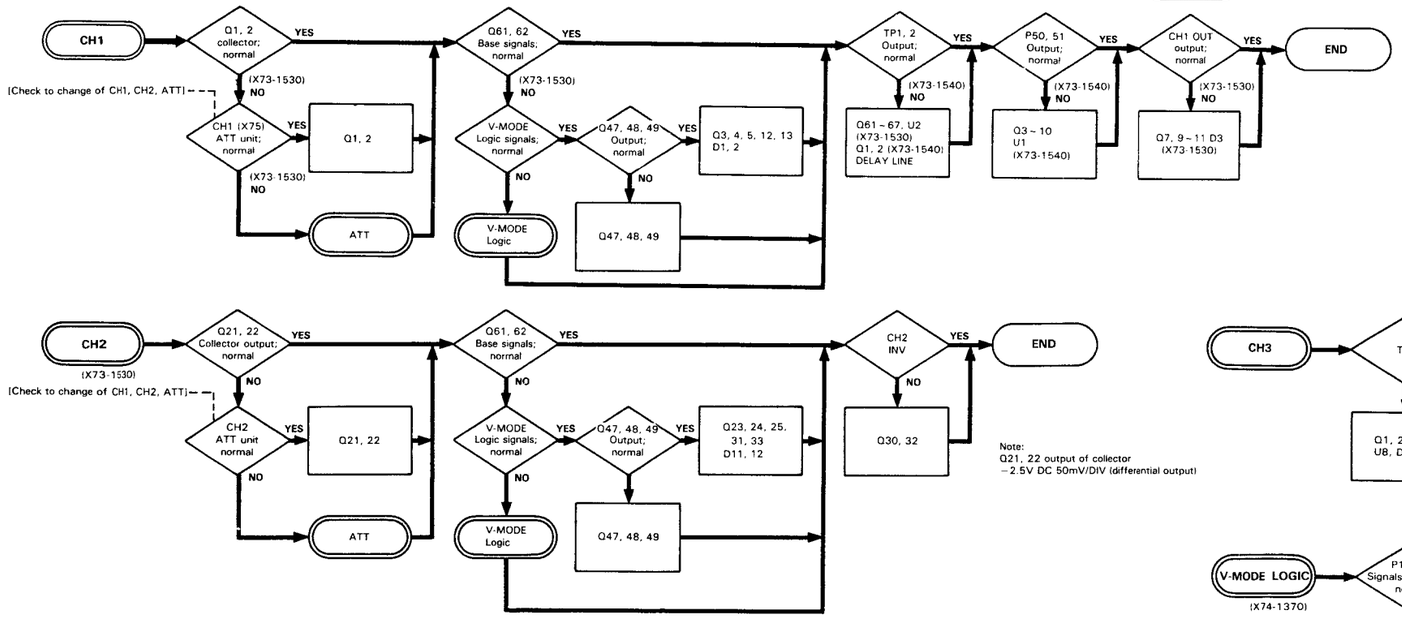
SIGNALS / H. DISPLAY	U5			U1			U2							
	Pin 10	Pin 13	Pin 9	Pin 2	Pin 10	Pin 1	Pin 4	Pin 5	Pin 2	Pin 12	Pin 1	Pin 6	Pin 11	Pin 3
A	⎍A⎌	L	H	L	H	H	⎍A⎌	H	L	L	H	⎍A⎌⎍A⎌⎍A⎌	H	H
ALT	⎍A⎌	⎍B⎌	H	H	H	H	⎍A⎌	TOGGLE at CK	⎍B⎌	TOGGLE at CK	H	⎍A⎌ ⎍A⎌	⎍B⎌ H	⎍B⎌
INT	⎍A⎌	⎍B⎌	H	L	H	H	⎍A⎌	H	⎍B⎌	L	H	⎍A⎌⎍A⎌⎍A⎌	H	⎍B⎌
B	⎍A⎌	⎍B⎌	H	H	L	H	⎍A⎌	L	⎍B⎌	H	L	H	⎍B⎌⎍B⎌⎍B⎌	H
X-Y	L	L	H	H	H	L	H	H	L	L	L	L	H	H

Note: ⎍A⎌: A sweep — H
⎍B⎌: B sweep -- H

Table 7

TROUBLESHOOTING





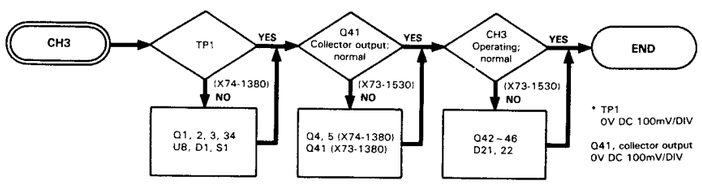
Note:
* Q1, 2 collector output voltage
  −2.5V DC, 50mV/DIV (differential output)
* Q61, 62 Base signals
  8.1V DC 100mV/DIV (differential output)

TP1, 2 Output
−4.3 V DC 200mV/DIV (differential output)

P50, 51 output
34V DC 5V/DIV (differential output)

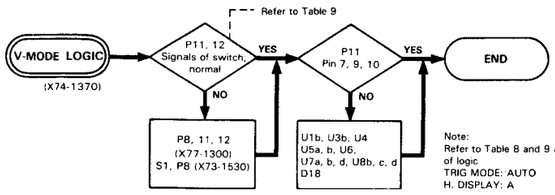
CH1 OUT
AC coupling output
50mV/DIV (into 50Ω termination)

Note:
Q21, 22 output of collector
−2.5V DC 50mV/DIV (differential output)

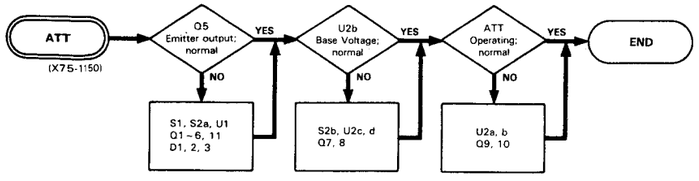


* TP1
  0V DC 100mV/DIV

Q41, collector output
0V DC 100mV/DIV


Refer to Table 9
V-MODE LOGIC
(X74-1370)
P11, 12 Signals of switch; normal
P11 Pin 7, 9, 10
END
YES
NO
P8, 11, 12 (X77-1300) S1, P8 (X73-1530)
U1b, U3b, U4 U5a, b, U6, U7a, b, d, U8b, c, d D18

Note:
Refer to Table 8 and 9 about signals of logic
TRIG MODE: AUTO
H. DISPLAY: A



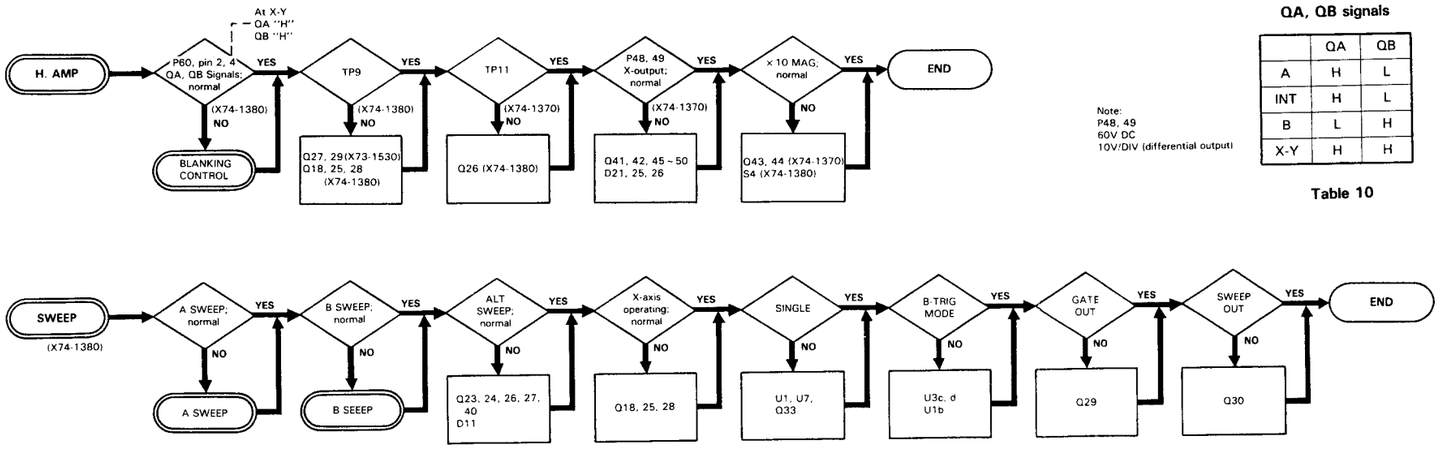
MODE / SIGNALS	TRIPLE ALT	TRIPLE CHOP
U4, Pin 1, 13 CK		
P11, pin 9 CH1-E		
P11, pin 7 CH2-E		
P11, pin 10 CH3-E		

Table 8

IC or SIGNALS / MODE		P11 Pin 6 CH1	P12 Pin 2 CH2	P12 Pin 1 DUAL	P11 Pin 5 CHOP	U7 Pin 5,12 X-Y	U1 Pin 4 A-BLK	U1 Pin 5	U4 Pin 1,13 CK	U4 Pin 15 R	U4 Pin 4 S	U7 Pin 11	U4 Pin 14 R	U4a Pin 5 Q	U4a Pin 6 $\overline{Q}$	U4b Pin 7 $\overline{Q}$	U7 Pin 3	P11 Pin 9 CH1-E	P11 Pin 7 CH2-E	P11 Pin 10 CH3-E
CH1		L	H	—	L	L		H		L	H	—	L	L	H	H	H	L	H	H
CH2		H	L	—	L	L		H		H	L	—	L	H	L	H	H	H	L	H
ADD		L	L	—	L	L		H		L	L	—	L	H	H	H	L	L	L	H
DUAL	ALT	H	H	L	L	L		H		H	H	L	L	TOGGLE at CLK		H	H	TOGGLE		H
	CHOP	H	H	L	H	L				H	H	L	L	TOGGLE at CLK		H	H	TOGGLE		H
TR1	ALT	H	H	H	L	L		H		H	H	H	H			Refer to Table-8		Refer to Table-8		
	CHOP	H	H	H	H	L				H	H	H	H							
X-Y		—	—	—	—	H	L	H	L	L	H	H	L	L	H	H	H	L	H	H

Table 9

TROUBLESHOOTING



Note:
P48, 49
60V DC
10V/DIV (differential output)

QA, QB signals

	QA	QB
A	H	L
INT	H	L
B	L	H
X-Y	H	H

Table 10

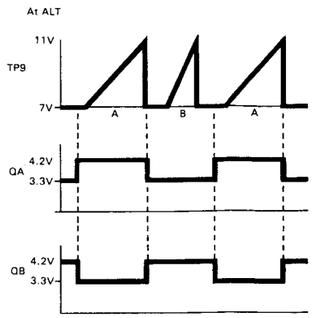
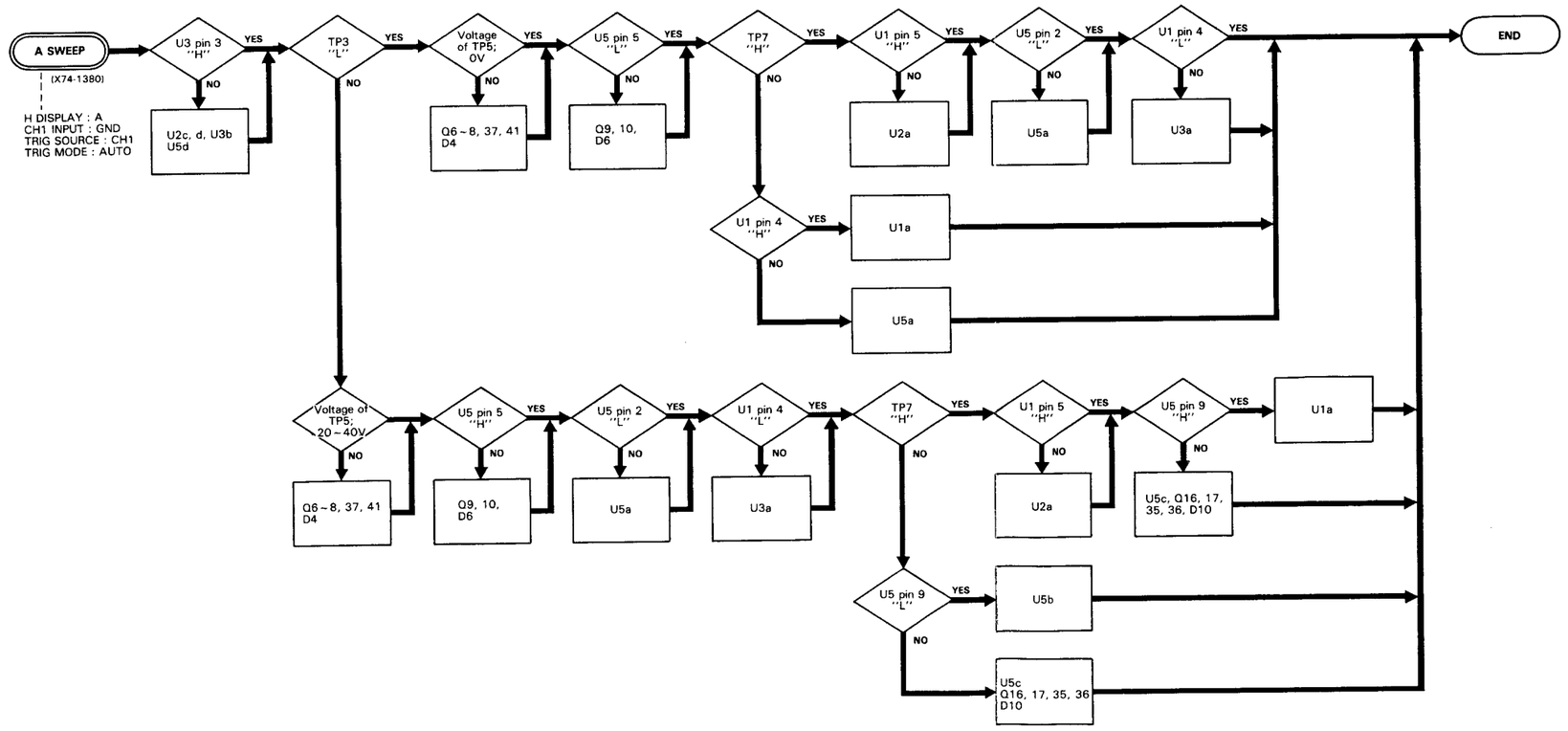
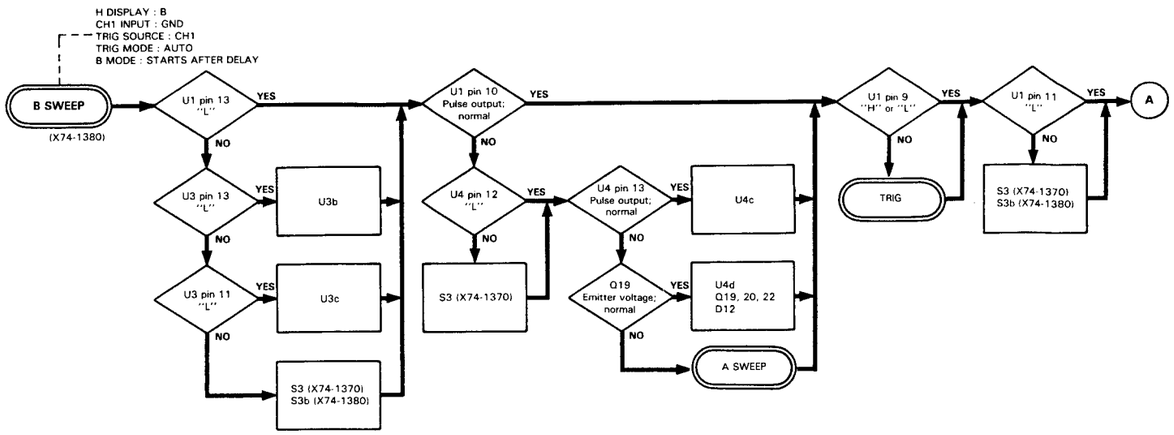
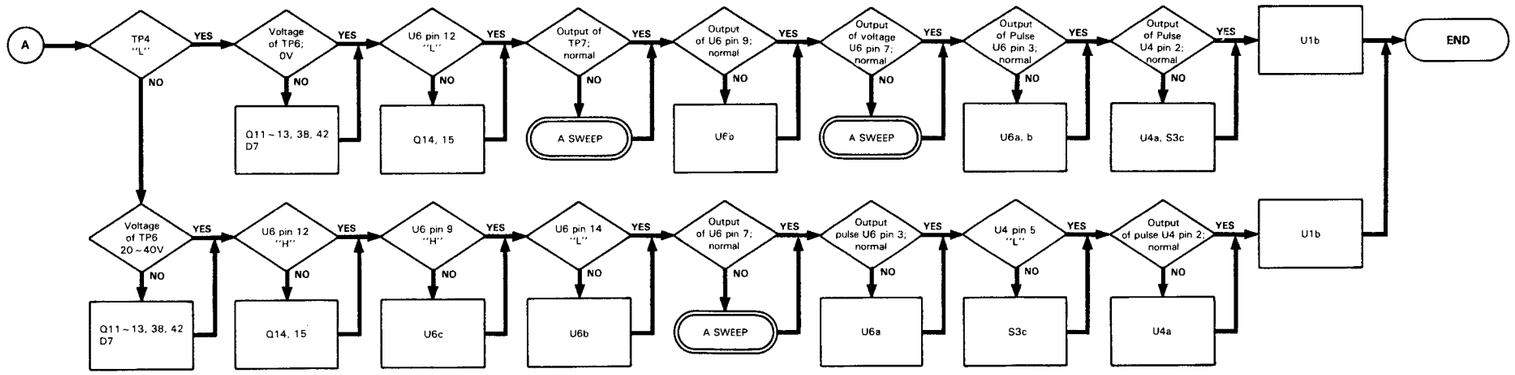


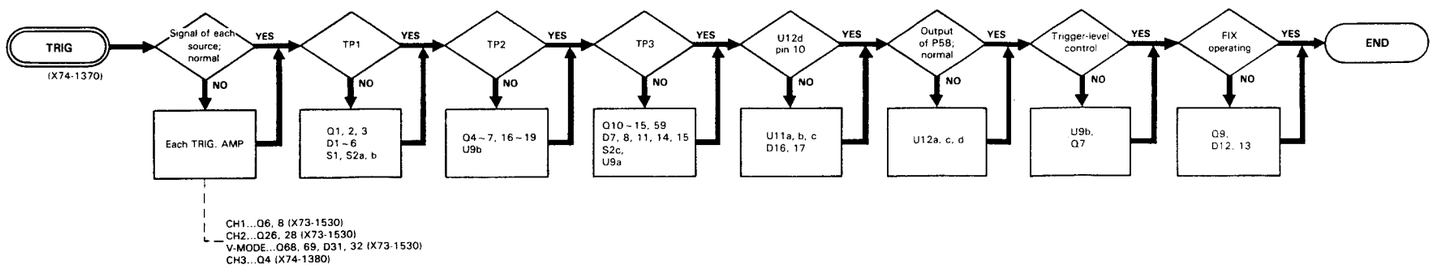
Fig. 13



TROUBLESHOOTING







PARTS LIST

MIAN CHASSIS CS-1060

(Y70-1440-21)

REF.NO	PARTS NO	NAME & DESCRIPTION
1	A01-1105-12	CASE
2	A01-1106-02	CASE
3	A10-1436-02	CHASSIS
4	A20-2764-11	PANEL
5	A21-1038-02	DECORATIVE PANEL
6	A22-0827-13	SUB PANEL
7	A22-0831-12	SUB PANEL
8	A23-1644-02	REAR PANEL
9	A33-0502-05	REFLECTOR (FOR LAMP ASS'Y)
10	A33-0503-05	REFLECTOR (FOR LAMP ASS'Y)
11	B07-0712-13	ESCUTCHEON FOR FILTER
12	B19-0726-04	FILTER
13	B20-0924-04	SCALE
14	B30-0903-15	LED LAMP (RED)
—	B30-0940-05	LAMP ASS'Y
15	B30-0941-05	LAMP
16	B40-2765-04	NAME PLATE (SERIAL NO)
—	B41-0710-04	CAUTION LABEL (HIGH VOLTAGE)
—	B41-0758-03	CAUTION LABEL
—	B50-7510-00	INSTRUCTION
17	E04-0251-05	BNC RECEPTACLE
18	E21-0657-04	TERMINAL (GND)
19	E21-0660-04	TERMINAL(CAL)
—	E23-0043-04	EARTH LUG
—	E23-0513-05	EARTH LUG
—	E23-0522-14	EARTH PLATE
—	E23-0524-04	EARTH LUG
20	E30-0545-05	AC POWER CORD
—	E30-1851-05	POWER CORD ASS'Y (JIS)
—	E31-2371-05	LEAD WIRE WITH CONNECTOR
—	E31-2372-05	LEAD WIRE WITH CONNECTOR
—	E31-2391-05	LEAD WIRE WITH CONNECTOR
—	E31-2392-05	LEAD WIRE WITH CONNECTOR
—	E31-2393-05	LEAD WIRE WITH CONNECTOR
—	E31-2394-05	LEAD WIRE WITH CONNECTOR
—	E31-2395-05	LEAD WIRE WITH CONNECTOR
—	E31-2396-15	LEAD WIRE WITH CONNECTOR
—	E31-2397-05	LEAD WIRE WITH CONNECTOR
—	E31-2398-15	LEAD WIRE WITH CONNECTOR
—	E31-2399-05	LEAD WIRE WITH CONNECTOR
—	E31-2400-05	LEAD WIRE WITH CONNECTOR
—	E31-2401-05	LEAD WIRE WITH CONNECTOR
—	E31-2402-15	LEAD WIRE WITH CONNECTOR
—	E31-2403-05	LEAD WIRE WITH CONNECTOR
—	E31-2404-05	LEAD WIRE WITH CONNECTOR
—	E31-2405-05	LEAD WIRE WITH CONNECTOR
—	E31-2406-05	LEAD WIRE WITH CONNECTOR
—	E31-2407-15	LEAD WIRE WITH CONNECTOR
—	E31-2408-05	LEAD WIRE WITH CONNECTOR
—	E31-2409-05	LEAD WIRE WITH CONNECTOR
—	E31-2410-05	LEAD WIRE WITH CONNECTOR
—	E31-2411-05	LEAD WIRE WITH CONNECTOR
—	E31-2412-05	LEAD WIRE WITH CONNECTOR
—	E31-2413-05	LEAD WIRE WITH CONNECTOR
—	E31-2414-05	LEAD WIRE WITH CONNECTOR
—	E31-2415-05	LEAD WIRE WITH CONNECTOR
—	E31-2416-05	LEAD WIRE WITH CONNECTOR
—	E31-2417-05	LEAD WIRE WITH CONNECTOR
—	E31-2418-05	LEAD WIRE WITH CONNECTOR
—	E31-2419-05	LEAD WIRE WITH CONNECTOR
—	E31-2420-05	LEAD WIRE WITH CONNECTOR
—	E31-2478-05	LEAD WIRE WITH CONNECTOR
—	E31-2479-05	LEAD WIRE WITH CONNECTOR
21	F01-0838-03	HEAT SINK
22	F05-1023-05	FUSE 1A
22	F05-2023-05	FUSE 2A
23	F07-0908-14	PROTECTION COVER
24	F10-1567-04	EARTH BAND (FOR H.VOLT BLCKE)
25	F11-0981-13	SHIELD CASE
—	F20-0639-04	INSULATOR
26	G02-0606-14	SPRING FOR HANDLE
27	G02-0607-04	SPRING FOR CRT
28	G16-0602-04	REFLECTOR SHEET(L)
29	G16-0603-04	REFLECTOR SHEET(R)
—	H01-5704-04	CARTON BOX
—	H10-2817-01	FOAMED STYRENE PAD
—	H10-2818-01	FOAMED STYRENE PAD
—	H20-1719-04	VINYL COVER
—	H25-0016-00	BAG
—	H25-0029-04	BAG
30	J02-0089-05	LEG
31	J10-0100-12	BEZEL
32	J13-0033-15	FUSE HOLDER
33	J19-1313-05	LEAD HOLDER
—	J19-1620-05	CORD CLAMP
34	J19-1633-03	HOLDER FOR CRT
35	J19-1634-04	HOLDER FOR LEAD
36	J19-1635-04	HOLDER FOR LED
37	J19-1637-03	HOLDER FOR DELAY LINE
38	J21-2906-05	GEAR FOR HANDLE
39	J21-2907-05	RING FOR HANDLE
40	J21-2970-23	BLACKET FOR CRT
41	J21-2979-14	BLACKET FOR SCALE
42	J21-2980-04	BRACKET FOR P.C.BOARD
43	J21-2983-04	AC CORD BRACKET
44	J25-3000-05	P.C.BOARD (FOR LAMP ASS'Y)
45	J31-0603-04	COLLAR
46	J31-0604-04	COLLAR
47	J42-0083-05	BUSHING
—	J42-0524-04	BUSHING
48	J59-0403-05	NYLON RIVET
—	J61-0049-05	WIRE BAND
—	J61-0401-05	WIRE BAND
49	J61-0515-05	SUPPORT (I TYPE)
50	J61-0518-05	SUPPORT (T TYPE)
51	J61-0519-04	SUPPORT (P.C.BOARD)
52	K01-0520-05	HANDLE
53	K21-0855-14	KNOB
54	K21-0858-04	KNOB
55	K21-0860-03	KNOB
56	K21-0862-03	KNOB
57	K21-0863-03	KNOB
58	K21-0864-03	KNOB
59	K21-0866-13	KNOB
60	K27-0530-04	KNOB FOR LEVER
61	L01-9364-05	POWER TRANSFORMER
62	L39-0518-05	ROTATOR COIL
63	L76-0107-05	DELAY LINE
—	N08-0611-04	DRESSED SCREW
—	N09-0705-05	SCREW, HEX SOCKET FLAT HD
—	N09-0710-05	SCREW, SEMS PAN HD
—	N09-0715-04	SCREW, PAN HD M 4X31
—	N09-0717-05	SCREW, TRUSS HD M 3X12
—	N09-0720-05	SCREW, SEMS PAN HD
—	N10-2070-46	NUT, HEX
—	N15-1030-41	WASHER, FLAT FOR M3
—	N15-1110-46	WASHER
—	N19-0704-04	WASHER
—	N19-0710-05	WASHER
—	N30-3004-46	SCREW, PAN HD M 3X4
—	N30-3006-41	SCREW, PAN HD M 3X6
—	N30-3008-46	SCREW, PAN HD M 3X8
—	N30-4006-41	SCREW, PAN HD M 4X6
—	N30-4012-41	SCREW, PAN HD M 4X12
—	N32-3008-41	SCREW, FLAT HD M 3X8
—	N88-3006-46	SCREW, FLAT HD TAP TITE
—	N88-3008-46	SCREW, FLAT HD TAP TITE
—	N89-3006-41	SCREW, BINDING TAP TITE
—	N89-3010-41	SCREW, BINDING TAP TITE
64	R03-3502-15	V.R. 20K B
65	R05-3505-05	V.R. 20K B
66	R05-8001-05	V.R. 3M B
67	R10-9502-05	V.R. 10K,200K B
68	R29-0504-05	V.R. 1K B
69	SLP520D	LED (RED,GREEN)
70	W01-0503-04	CORD WRAP
71	W02-0411-05	HIGH VOLTAGE POWER BLOCK
72	X73-1530-01	VERTICAL PREAMP UNIT
73	X73-1540-01	VERTICAL OUTPUT AMP UNIT
74	X74-1370-01	TRIGGER UNIT
75	X74-1380-01	SWEEP UNIT
76	X75-1150-00	ATTENUATOR UNIT
77	X77-1300-00	CONNECTION UNIT
78	X81-1250-03	CRT SOCKET UNIT
—	Y87-1840-00	PROBE PC-20
79	150JTM31	CRT
	212-2014-05	TUBE (PLASTIC)
	212-3017-05	TUBE (PLASTIC)
	490-0009-05	TAPE
Q001	2SD1276(Q)	TR, SI, NPN
Q002	2SD1276(Q)	TR, SI, NPN
Q003	2SB950(P,Q)	TR. SI, PNP
Q004	2SB950(P,Q)	TR. SI, PNP
Q005	2SB940(P)	TR. SI, PNP
Q006	2SA1156(K,L)	TR. SI, PNP

VERTICAL ATTENUATOR UNIT

(X75-1150-00)

REF.NO	PARTS NO	NAME & DESCRIPTION
X75-1	A22-0832-13	SUB PANEL
X75-2	E04-0251-05	BNC RECEPTACLE
	E23-0015-04	EARTH LUG
	E23-0015-04	EARTH LUG
	E23-0513-05	EARTH LUG
	E23-0522-14	EARTH PLATE
	E31-2170-05	JUMPING WIRE
	F10-1566-04	SHIELD PLATE
	G13-0716-04	CUSHION
X75-3	J19-1638-14	HOLDER FOR P.C.B
	J25-5017-03	P.C.BOARD (UNMOUNTED)
	N30-3006-46	SCREW, PAN HD M 3X6
	N89-3006-46	SCREW, BINDING TAP TITE
	001-0601-05	COATING WIRE

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
	002-0001-05	BRAIDED WIRE			
	212-1018-05	TUBE (PLASTIC)			
	212-1018-05	TUBE (PLASTIC)			
C001	C91-0501-05	CAP. METAL FILM	0.047	10%	630V
C002	C91-0502-05	CAP. METAL FILM	0.01	20%	630V
C003	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C004	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C005	NO USE				
C006	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C007	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C008	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C009	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C010	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C011	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C012	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C015	CC45FCH1H040C	CAP. CERAMIC	4P	0.25P	50V
C016	CC45SL1H331J	CAP. CERAMIC	330P	5%	50V
C017	CC45FCH1H390J	CAP. CERAMIC	39P	5%	50V
C018	NO USE				
C019	CC45FCH1H070D	CAP. CERAMIC	7P	0.5P	50V
C020	NO USE				
C021	CC45FCH1H390J	CAP. CERAMIC	39P	5%	50V
C022	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C023	CC45FCH1H330J	CAP. CERAMIC	33P	5%	50V
C024	CC45CH1H121J	CAP. CERAMIC	120P	5%	50V
D001	DS442X	DIODE, SILICON SWITCHING			
D002	WZ-050	DIODE, ZENER	5V		
D003	WZ-050	DIODE, ZENER	5V		
P055	E40-0673-05	PIN CONNECTOR	6 CONTACT		
Q001	2SK117(D)	FET, N-CHANNEL			
Q002	2SK117(D)	FET, N-CHANNEL			
Q003	2SK107(3)	FET, N-CHANNEL			
Q004	2SK107(3)	FET, N-CHANNEL			
Q005	2SA1005(K)	TR. SI, PNP			
Q006	2SA1005(K)	TR. SI, PNP			
Q007	2SA1005(K)	TR. SI, PNP			
Q008	2SA1005(K)	TR. SI, PNP			
Q009	2SA1005(K)	TR. SI, PNP			
Q010	2SA1005(K)	TR. SI, PNP			
Q011	2SK117(D)	FET, N-CHANNEL			
R001	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R002	RD14BB2E105J	RES. CARBON	1M	5%	1/4W
R003	RN14BK2E5003F	RES. METAL FILM	500K	1%	1/4W
R004	RN14BK2E5003F	RES. METAL FILM	500K	1%	1/4W
R005	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R006	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R007	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R008	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R009	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R010	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R011	RN14BK2E1301F	RES. METAL FILM	1.3K	1%	1/4W
R012	RN14BK2E1601F	RES. METAL FILM	1.6K	1%	1/4W
R013	RD14BB2E105J	RES. CARBON	1M	5%	1/4W
R014	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R015	RD14BB2E241J	RES. CARBON	240	5%	1/4W
R016	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R017	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R018	RD14BB2E302J	RES. CARBON	3K	5%	1/4W
R019	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R020	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R021	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R022	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R023	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R024	RN14BK2E1201F	RES. METAL FILM	1.2K	1%	1/4W
R025	RN14BK2E3000F	RES. METAL FILM	300	1%	1/4W
R026	RD14BB2E684J	RES. CARBON	680K	5%	1/4W
R029	RD14BB2E620J	RES. CARBON	62	5%	1/4W
R030	RN14BK2E1200F	RES. METAL FILM	120	1%	1/4W
R031	RN14BK2E2400F	RES. METAL FILM	240	1%	1/4W
R032	RN14BK2E2400F	RES. METAL FILM	240	1%	1/4W
R033	RN14BK2E1200F	RES. METAL FILM	120	1%	1/4W
R034	RN14BK2E2400F	RES. METAL FILM	240	1%	1/4W
R035	RN14BK2E1200F	RES. METAL FILM	120	1%	1/4W
R036	RN14BK2E30R0F	RES. METAL FILM	30.0	1%	1/4W
R037	R92-1045-05	RES. METAL FILM	72	1%	1/4W
R038	RN14BK2E76R8F	RES. METAL FILM	76.8	1%	1/4W
R039	R92-1046-05	RES. METAL FILM	48	1%	1/4W
R040	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R041	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R042	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R043	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R044	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R045	RN14BK2E3300F	RES. METAL FILM	330	1%	1/4W
R046	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R047	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R048	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R049	NO USE				
R050	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R051	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R052	RN14BK2E3300F	RES. METAL FILM	330	1%	1/4W
R053	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R054	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R055	RD14BB2E432J	RES. CARBON	4.3K	5%	1/4W
R056	RD14BB2E362J	RES. CARBON	3.6K	5%	1/4W
R057	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R058	RD14BB2C330J	RES. CARBON	33	5%	1/6W
S001	S32-4007-05	SLIDE SWITCH			
S002	S02-4501-05	ROTARY SWITCH			
TC005	C05-0430-05	CAP. TRIMMER	50P		
TC006	NO USE				
TC007	C05-0427-05	CAP. TRIMMER	10P		
U001	LF411CN	IC, DUAL JFET INPUT OP-AMP			
U002	CA3127E	IC. TR, ARRY N-P-N			
VR001	R12-0058-05	RES. SEMI FIXED	470 B		
VR002	R12-3502-05	RES. SEMI FIXED	33K B		
VR003	R12-3502-05	RES. SEMI FIXED	33K B		
VR004	R12-0502-05	RES. SEMI FIXED	100 B		
VR005	S02-4501-05	ROTARY SWITCH			
VR006	S02-4501-05	ROTARY SWITCH			
VR007	R12-0502-05	RES. SEMI FIXED	100 B		

VERTICAL PREAMP UNIT

(X73-1530-00)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E23-0526-04	EARTH PLATE			
	E31-2170-05	JUMPING WIRE			
	E33-4042-00	WIRE ASS'Y			
	J25-5021-13	PCB (UNMOUNTED)			
	J31-0604-04	COLLAR			
X73-1	K27-0528-04	KNOB FOR PUSH			
C001	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C002	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C003	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C004	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C005	NO USE				
C006	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C007	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C008	CE04BW1E220M	CAP. ELECTRO	22	20%	25V
C011	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C012	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C013	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C014	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C015	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C016	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C017	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C018	CE04FW1A470M	CAP. ELECTRO	47	20%	10V
C021	CE04FW1E100M	CAP. ELECTRO	10	20%	25V
C022	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C023	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C024	NO USE				
C025	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C028	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C031	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C032	NO USE				
C033	CE04FW1E330M	CAP. ELECTRO	33	20%	25V
C034	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C035	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C036	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C037	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C038	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C039	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C044	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C045	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C046	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C047	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C048	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C049	NO USE				
C050	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C051	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C052	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C053	NO USE				
C054	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C055	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C056	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C057	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C058	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C059	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C060	NO USE				
C061	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C062	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C063	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C064	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C065	CE04FW1E220M	CAP. ELECTRO	22	20%	25V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
C066	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C067	NO USE				
C068	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C069	NO USE				
C070	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C071	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C072	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C073	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C074	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C075	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C076	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C077	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C078	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C079	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C080	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C081	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C082	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C083	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C084	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C085	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C086	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C087	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C088	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C089	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C090	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C091	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C092	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C093	CE04W1J330M	CAP. ELECTRO	33	20%	63V
C094	CK45B2H222K	CAP. CERAMIC	2200P	10%	500V
D001	DS442X	DIODE, SILICON	SWITCHING		
D002	DS442X	DIODE, SILICON	SWITCHING		
D003	WZ-075	DIODE, ZENER	7.5V		
D011	DS442X	DIODE, SILICON	SWITCHING		
D012	DS442X	DIODE, SILICON	SWITCHING		
D021	DS442X	DIODE, SILICON	SWITCHING		
D022	DS442X	DIODE, SILICON	SWITCHING		
D031	GMA-01	DIODE			
D032	GMA-01	DIODE			
L001	L40-6882-02	FERRI INDUCTOR	68UH		
P001	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P002	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P003	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P004	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P005	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P006	E40-0473-05	PIN CONNECTOR	4 CONTACT		
P007	E40-1116-05	PIN CONNECTOR	11P		
P008	E40-1116-05	PIN CONNECTOR	11P		
P052	E40-0415-05	PIN CONNECTOR	4 CONTACT		
P055	E40-0673-05	PIN CONNECTOR	6 CONTACT		
P056	E40-0673-05	PIN CONNECTOR	6 CONTACT		
Q001	2SA1005(K)	TR. SI, PNP			
Q002	2SA1005(K)	TR. SI, PNP			
Q003	2SC1215(S,T)	TR, SI, NPN			
Q004	2SC1215(S,T)	TR, SI, NPN			
Q005	2SC1215(S,T)	TR, SI, NPN			
Q006	2SA1005(K)	TR. SI, PNP			
Q007	2SA1005(K)	TR. SI, PNP			
Q008	2SC1215(S,T)	TR, SI, NPN			
Q009	2SC1215(S,T)	TR, SI, NPN			
Q010	2SA1005(K)	TR. SI, PNP			
Q011	2SC1215(S,T)	TR, SI, NPN			
Q012	2SC1215(S,T)	TR, SI, NPN			
Q013	2SC1215(S,T)	TR, SI, NPN			
Q021	2SA1005(K)	TR. SI, PNP			
Q022	2SA1005(K)	TR. SI, PNP			
Q023	2SC1215(S,T)	TR, SI, NPN			
Q024	2SC1215(S,T)	TR, SI, NPN			
Q025	2SC1215(S,T)	TR, SI, NPN			
Q026	2SA1005(K)	TR. SI, PNP			
Q027	2SA1005(K)	TR. SI, PNP			
Q028	2SC1215(S,T)	TR, SI, NPN			
Q029	2SC1215(S,T)	TR, SI, NPN			
Q030	2SC1215(S,T)	TR, SI, NPN			
Q031	2SC1215(S,T)	TR, SI, NPN			
Q032	2SC1215(S,T)	TR, SI, NPN			
Q033	2SC1215(S,T)	TR, SI, NPN			
Q041	2SA1005(K)	TR. SI, PNP			
Q042	2SC1215(S,T)	TR, SI, NPN			
Q043	2SC1215(S,T)	TR, SI, NPN			
Q044	2SC1215(S,T)	TR, SI, NPN			
Q045	2SC1215(S,T)	TR, SI, NPN			
Q046	2SC1215(S,T)	TR, SI, NPN			
Q047	2SC2786(K)	TR. SI, NPN			
Q048	2SC2786(K)	TR. SI, NPN			
Q049	2SC2786(K)	TR. SI, NPN			

REF.NO	PARTS NO	NAME & DESCRIPTION			
Q061	2SC1215(S,T)	TR, SI, NPN			
Q062	2SC1215(S,T)	TR, SI, NPN			
Q063	2SA1005(K)	TR. SI, PNP			
Q064	2SA1005(K)	TR. SI, PNP			
Q065	2SA1005(K)	TR. SI, PNP			
Q066	2SC2644	TR. SI, NPN			
Q067	2SC2644	TR. SI, NPN			
Q068	2SC1215(S,T)	TR, SI, NPN			
Q069	2SC1215(S,T)	TR, SI, NPN			
R001	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R002	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R003	RD14BB2E243J	RES. CARBON	24K	5%	1/4W
R004	RD14BB2E623J	RES. CARBON	62K	5%	1/4W
R005	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R006	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R007	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R008	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R009	RN14BK2E1202F	RES. METAL FILM	12K	1%	1/4W
R010	RN14BK2E1202F	RES. METAL FILM	12K	1%	1/4W
R011	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R012	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R013	NO USE				
R014	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R015	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R016	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R017	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R018	RN14BK2E2701F	RES. METAL FILM	2.7K	1%	1/4W
R019	RN14BK2E5101F	RES. METAL FILM	5.1K	1%	1/4W
R020	RN14BK2E3000F	RES. METAL FILM	300	1%	1/4W
R021	NO USE				
R022	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R023	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R024	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R025	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R026	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R027	RD14BB2E221J	RES. CARBON	220	5%	1/4W
R028	RD14BB2E221J	RES. CARBON	220	5%	1/4W
R029	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R030	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R031	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R032	RD14BB2E431J	RES. CARBON	430	5%	1/4W
R033	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R034	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R035	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R036	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R037	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R038	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R039	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R040	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R041	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R042	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R043	RN14BK2E4301F	RES. METAL FILM	4.3K	1%	1/4W
R044	RN14BK2E6800F	RES. METAL FILM	680	1%	1/4W
R045	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R046	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R047	NO USE				
R048	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R051	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R052	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R053	RD14BB2E243J	RES. CARBON	24K	5%	1/4W
R054	RD14BB2E623J	RES. CARBON	62K	5%	1/4W
R055	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R056	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R057	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R058	RN14BK2E3001F	RES. METAL FILM	3K	1%	1/4W
R059	RN14BK2E1202F	RES. METAL FILM	12K	1%	1/4W
R060	RN14BK2E1202F	RES. METAL FILM	12K	1%	1/4W
R061	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R062	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R063	NO USE				
R064	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R065	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R066	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R067	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R068	RN14BK2E2701F	RES. METAL FILM	2.7K	1%	1/4W
R069	RN14BK2E5101F	RES. METAL FILM	5.1K	1%	1/4W
R070	RN14BK2E3000F	RES. METAL FILM	300	1%	1/4W
R071	NO USE				
R072	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R073	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R074	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R075	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R076	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R077	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R078	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R079	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R080	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R081	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R082	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R083	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R084	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R085	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R086	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R087	RD14BB2E220J	RES. CARBON	22	5%	1/4W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R088	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R089	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R090	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R091	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R092	RN14BK2E4301F	RES. METAL FILM	4.3K	1%	1/4W
R093	RN14BK2E6800F	RES. METAL FILM	680	1%	1/4W
R094	RN14BK2E4301F	RES. METAL FILM	4.3K	1%	1/4W
R095	RN14BK2E6800F	RES. METAL FILM	680	1%	1/4W
R096	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R101	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R102	RN14BK2E4700F	RES. METAL FILM	470	1%	1/4W
R103	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R104	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R105	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R106	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R107	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R108	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R109	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R110	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R111	RN14BK2E5101F	RES. METAL FILM	5.1K	1%	1/4W
R112	RN14BK2E2701F	RES. METAL FILM	2.7K	1%	1/4W
R113	RN14BK2E3000F	RES. METAL FILM	300	1%	1/4W
R114	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R115	NO USE				
R116	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R117	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R118	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R119	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R120	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R121	RN14BK2E6800F	RES. METAL FILM	680	1%	1/4W
R122	RN14BK2E4301F	RES. METAL FILM	4.3K	1%	1/4W
R123	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R124	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R125	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R126	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R127	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R128	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R129	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R130	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R131	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R132	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R133	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R151	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R152	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R153	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R154	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R155	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R156	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R157	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R158	RD14BB2E272J	RES. CARBON	2.7K	5%	1/4W
R159	RN14BK2E4702F	RES. METAL FILM	47K	1%	1/4W
R160	RN14BK2E4702F	RES. METAL FILM	47K	1%	1/4W
R161	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R162	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R163	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R164	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R165	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R166	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R167	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R168	RD14BB2E911J	RES. CARBON	910	5%	1/4W
R169	RD14BB2E911J	RES. CARBON	910	5%	1/4W
R170	NO USE				
R171	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R172	RD14BB2E112J	RES. CARBON	1.1K	5%	1/4W
R173	RD14BB2E112J	RES. CARBON	1.1K	5%	1/4W
R174	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R175	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R176	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R177	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R178	RD14BB2E431J	RES. CARBON	430	5%	1/4W
R179	RD14BB2E431J	RES. CARBON	430	5%	1/4W
R180	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R181	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R182	RD14BB2E333J	RES. CARBON	33K	5%	1/4W
R183	RD14BB2E181J	RES. CARBON	180	5%	1/4W
R186	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R187	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R188	RN14BK2E6800F	RES. METAL FILM	680	1%	1/4W
R189	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R190	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R191	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R192	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R193	NO USE				
R194	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W
R195	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R198	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R201	RD14BB2E621J	RES. CARBON	620	5%	1/4W
R202	RD14BB2E621J	RES. CARBON	620	5%	1/4W
R203	RD14BB2E621J	RES. CARBON	620	5%	1/4W
R204	RD14BB2E621J	RES. CARBON	620	5%	1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION	
S001	S42-4510-05	PUSH SWITCH	
TC001	C05-0434-05	CAP. TRIMMER	20P
TC011	C05-0434-05	CAP. TRIMMER	20P
TC021	C05-0422-05	CAP. TRIMMER	20P
TC031	C05-0432-05	CAP. TRIMMER	6P
TP001	E23-0046-04	TERMINAL	
TP002	E23-0046-04	TERMINAL	
TP003	E23-0046-04	TERMINAL	
TP004	E23-0046-04	TERMINAL	
TP005	E23-0046-04	TERMINAL	
U002	TL082CP	IC	OP AMP.
VR001	R05-3506-05	V.R.	10K B
VR002	R12-3523-05	RES. SEMI FIXED	20K B
VR003	R12-3522-05	RES. SEMI FIXED	10K B
VR004	NO USE		
VR005	R12-0543-05	RES. SEMI FIXED	500 B
VR006	R12-0541-05	RES. SEMI FIXED	100 B
VR011	R05-3506-05	V.R.	10K B
VR012	R12-3523-05	RES. SEMI FIXED	20K B
VR013	R12-3522-05	RES. SEMI FIXED	10K B
VR014	R12-0543-05	RES. SEMI FIXED	500 B
VR015	R12-0543-05	RES. SEMI FIXED	500 B
VR016	R12-0541-05	RES. SEMI FIXED	100 B
VR021	R12-3521-05	RES. SEMI FIXED	20K B
VR022	R12-2512-05	RES. SEMI FIXED	5K B
VR023	R12-0421-05	RES. SEMI FIXED	100 B
VR031	R12-0541-05	RES. SEMI FIXED	100 B
VR032	R12-0541-05	RES. SEMI FIXED	100 B
VR033	NO USE		
VR034	R12-1520-05	RES. SEMI FIXED	2KB
VR035	NO USE		
VR036	R12-1517-05	RES. SEMI FIXED	1K B

VERTICAL FINAL UNIT

(X73-1540-00)

REF.NO	PARTS NO	NAME & DESCRIPTION			
X73-2	E31-2170-05	JUMPING WIRE			
X73-3	F02-0511-05	HEAT SINK			
X73-4	F02-0512-05	HEAT SINK			
	J21-2981-04	BRACKET FOR TR			
	J25-5020-13	PCB (UNMOUNTED)			
	J30-0605-05	SPACER			
	212-1018-05	TUBE (PLASTIC)			
C001	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C002	CC45FCH1H060D	CAP. CERAMIC	6P	0.5P	50V
C003	CK45B1H332K	CAP. CERAMIC	3300P	10%	50V
C004	NO USE				
C005	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C006	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C007	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C008	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C009	CC45CH1H680J	CAP. CERAMIC	68P	5%	50V
C010	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C011	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C012	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C015	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C016	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C017	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C020	CE04W1J330M	CAP. ELECTRO	33	20%	63V
C021	CE04W1J330M	CAP. ELECTRO	33	20%	63V
C022	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C023	CK45B1H472K	CAP. CERAMIC	4700P	10%	50V
C024	CC45CH1H270J	CAP. CERAMIC	27P	5%	50V
D001	WZ-100	DIODE, ZENER	10V		
D002	WZ-100	DIODE, ZENER	10V		
L001	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L002	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L003	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L004	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L005	NO USE				
P006	E40-0473-05	PIN CONNECTOR	4 CONTACT		
P009	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P050	E40-0202-05	PIN CONNECTOR	2P		
P051	E40-0202-05	PIN CONNECTOR	2P		
P052	E40-0444-05	PIN CONNECTOR	4P		

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
Q001	2SA1206(K)	TR. SI, PNP			
Q002	2SA1206(K)	TR. SI, PNP			
Q003	2SC2644	TR. SI, NPN			
Q004	2SC2644	TR. SI, NPN			
Q005	2SC2644	TR. SI, NPN			
Q006	2SC2644	TR. SI, NPN			
Q007	2SC1164(O)	TR. SI, NPN			
Q008	2SC1164(O)	TR. SI, NPN			
Q009	2SC1164(O)	TR. SI, NPN			
Q010	2SC1164(O)	TR. SI, NPN			
R001	RD14BB2E910J	RES. CARBON	91	5%	1/4W
R002	RD14BB2E910J	RES. CARBON	91	5%	1/4W
R003	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R004	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R005	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R006	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R007	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R008	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R009	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R010	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R011	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R012	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R013	RD14BB2E5R6J	RES. CARBON	5.6	5%	1/4W
R014	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R015	RD14BB2E241J	RES. CARBON	240	5%	1/4W
R016	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R017	NO USE				
R018	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R019	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R020	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R021	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R022	RD14BY2H621J	RES. CARBON	620	5%	1/2W
R023	RD14BY2H621J	RES. CARBON	620	5%	1/2W
R024	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R025	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R026	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R027	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R028	RS14GB3D820J	RES. METAL FILM	82	5%	2W
R029	RS14GB3D820J	RES. METAL FILM	82	5%	2W
R030	RD14BB2E6R8J	RES. CARBON	6.8	5%	1/4W
R031	RD14BB2E560J	RES. CARBON	56	5%	1/4W
R032	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R033	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R034	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R035	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R036	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R037	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R038	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R039	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R040	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R041	RS14AB3Y301J	RES. METAL FILM	300	5%	7W
R042	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R043	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R044	RS14AB3Y301J	RES. METAL FILM	300	5%	7W
R045	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R046	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R047	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R048	NO USE				
R049	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R050	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R051	RD14BB2E221J	RES. CARBON	220	5%	1/4W
TC001	C05-0422-05	CAP. TRIMMER	20P		
TC002	C05-0422-05	CAP. TRIMMER	20P		
TH001	SDT-100	THERMISTOR			
TH002	SDT-20	THERMISTOR			
TH003	SDT-100	THERMISTOR			
TP001	E23-0046-04	TERMINAL			
TP002	E23-0046-04	TERMINAL			
TP003	E23-0046-04	TERMINAL			
TP004	E23-0046-04	TERMINAL			
U001	NJM4558D	IC, DUAL OP-AMP			
VR001	R12-0539-05	RES. SEMI FIXED	200 B		
VR002	R12-1517-05	RES. SEMI FIXED	1K B		
VR003	R12-0539-05	RES. SEMI FIXED	200 B		

TRIG UNIT

(X74-1370-00)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	CC45FCH1H200J	CAP. CERAMIC	20P	5%	50V
	E23-0527-04	EARTH PLATE			
	E31-2170-05	JUMPING WIRE			
	E31-2390-05	LEAD WIRE WITH CONNECTOR			
	E33-4040-00	WIRE ASS'Y			
X74-1	F01-0813-05	HEAT SINK			
X74-2	F01-0820-04	HEAT SINK			
	F15-0727-04	HOLDER (NEON TUBE)			

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F20-0622-05	INSULATOR			
	J25-5016-22	PCB (UNMOUNTED)			
	N19-0191-05	WASHER NONMETAL			
	N30-3006-46	SCREW, PAN HD	M 3X6		
	N30-3008-46	SCREW, PAN HD	M 3X8		
C001	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C002	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C003	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C004	CQ93M1H103K	CAP. MYLAR	0.01	10%	50V
C005	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C006	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C007	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C008	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C009	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C010	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C011	CE04W1E100M	CAP. ELECTRO	10	20%	25V
C012	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C013	CK45B1H222K	CAP. CERAMIC	2200P	10%	50V
C014	CC45SL1H331J	CAP. CERAMIC	330P	5%	50V
C015	CC45FCH1H270J	CAP. CERAMIC	27P	5%	50V
C016	NO USE				
C017	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C018	NO USE				
C019	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C020	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C021	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C022	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C023	NO USE				
C024	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C025	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C026	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V
C027	CC45CH1H221J	CAP. CERAMIC	220P	5%	50V
C028	NO USE				
C029	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C030	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C031	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C032	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C033	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C034	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C035	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C036	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C037	CC45CH1H181J	CAP. CERAMIC	180P	5%	50V
C038	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C039	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C040	NO USE				
C041	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C042	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C043	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C044	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C045	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C046	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C047	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C048	CK45E3D102P	CAP. CERAMIC	1000P		2K
C049	C91-0571-05	CAP. CERAMIC	0.01		2KV
C050	C91-0571-05	CAP. CERAMIC	0.01		2KV
C051	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C052	CQ93M1H154K	CAP. MYLAR	0.15	10%	50V
C053	CQ93M1H154K	CAP. MYLAR	0.15	10%	50V
C054	CK45B1H472K	CAP. CERAMIC	4700P	10%	50V
C055	NO USE				
C056	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C057	NO USE				
C058	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C059	CE04W2E010	CAP. ELECTRO	1		250V
C060	C91-0571-05	CAP. CERAMIC	0.01		2KV
C061	C91-0571-05	CAP. CERAMIC	0.01		2KV
C062	C91-0571-05	CAP. CERAMIC	0.01		2KV
C063	C91-0571-05	CAP. CERAMIC	0.01		2KV
C064	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C065	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C066	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C067	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C068	CE04W2C3R3	CAP. ELECTRO	3.3		160V
C069	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C070	CE04W2C100	CAP. ELECTRO	10		160V
C071	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C072	CE04W1E331M	CAP. ELECTRO	330	20%	25V
C073	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C074	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C075	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C076	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C077	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C078	CE04W1E331M	CAP. ELECTRO	330	20%	25V
C079	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C080	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C081	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C082	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C083	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C084	CE04W1A471M	CAP. ELECTRO	470	20%	10V
C085	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C086	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C087	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C088	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C089	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C090	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C091	CK45F1H103Z	CAP. CERAMIC	0.01		50V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
C092	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C093	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C094	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C095	CE04W1A471M	CAP. ELECTRO	470	20%	10V
C096	CE04FW1A101M	CAP. ELECTRO	100	20%	10V
C097	C91-0571-05	CAP. CERAMIC	0.01		2KV
C098	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C099	NO USE				
C100	CK45B2H102K	CAP. CERAMIC	1000P	10%	500V
C101	CK45B2H102K	CAP. CERAMIC	1000P	10%	500V
C102	NO USE				
C103	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C104	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C105	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C106	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C107	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C108	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C109	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C110	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C111	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C112	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C113	CC45CH1H680J	CAP. CERAMIC	68P	5%	50V
C114	NO USE				
C115	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C116	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C117	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C118	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C119	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C120	C91-0571-05	CAP. CERAMIC	0.01		2KV
C121	NO USE				
C122	CC45CH1H070D	CAP. CERAMIC	7P	0.5P	50V
D001	DS442X	DIODE, SILICON	SWITCHING		
D002	DS442X	DIODE, SILICON	SWITCHING		
D003	DS442X	DIODE, SILICON	SWITCHING		
D004	DS442X	DIODE, SILICON	SWITCHING		
D005	DS442X	DIODE, SILICON	SWITCHING		
D006	DS442X	DIODE, SILICON	SWITCHING		
D007	DS442X	DIODE, SILICON	SWITCHING		
D008	DS442X	DIODE, SILICON	SWITCHING		
D011	1N60	DIODE GERMA			
D012	1N60	DIODE GERMA			
D013	1N60	DIODE GERMA			
D014	DS442X	DIODE, SILICON	SWITCHING		
D015	DS442X	DIODE, SILICON	SWITCHING		
D016	WZ-150	DIODE, ZENER	15V		
D017	DS442X	DIODE, SILICON	SWITCHING		
D018	DS442X	DIODE, SILICON	SWITCHING		
D019	DS442X	DIODE, SILICON	SWITCHING		
D020	DS442X	DIODE, SILICON	SWITCHING		
D021	DS442X	DIODE, SILICON	SWITCHING		
D024	1SS83	DIODE SILICON	SWITCHING		
D025	1SS83	DIODE SILICON	SWITCHING		
D026	1SS83	DIODE SILICON	SWITCHING		
D027	DS442X	DIODE, SILICON	SWITCHING		
D028	DS442X	DIODE, SILICON	SWITCHING		
D029	DS442X	DIODE, SILICON	SWITCHING		
D030	1SS83	DIODE SILICON	SWITCHING		
D031	1SS83	DIODE SILICON	SWITCHING		
D032	W06C	DIODE SILICON	RECTIFIER		
D033	W06C	DIODE SILICON	RECTIFIER		
D034	1SS83	DIODE SILICON	SWITCHING		
D035	W06C	DIODE SILICON	RECTIFIER		
D036	W06C	DIODE SILICON	RECTIFIER		
D037	DS442X	DIODE, SILICON	SWITCHING		
D038	DS442X	DIODE, SILICON	SWITCHING		
D041	1SS83	DIODE SILICON	SWITCHING		
D042	DS442X	DIODE, SILICON	SWITCHING		
D043	DS442X	DIODE, SILICON	SWITCHING		
D044	GMA-01	DIODE			
L005	L40-1011-04	FERRI INDUCTOR	100UH		
L006	L40-1011-04	FERRI INDUCTOR	100UH		
L007	L40-1011-13	FERRI INDUCTOR	100UH		
L008	L40-1011-13	FERRI INDUCTOR	100UH		
L009	L40-1011-04	FERRI INDUCTOR	100UH		
L010	L40-1011-04	FERRI INDUCTOR	100UH		
L011	L40-1011-13	FERRI INDUCTOR	100UH		
L012	L40-1011-13	FERRI INDUCTOR	100UH		
L013	L40-1011-04	FERRI INDUCTOR	100UH		
L014	L40-1011-04	FERRI INDUCTOR	100UH		
L015	L40-1011-13	FERRI INDUCTOR	100UH		
L016	L40-1011-13	FERRI INDUCTOR	100UH		
L017	L40-1011-04	FERRI INDUCTOR	100UH		
L018	L40-1011-04	FERRI INDUCTOR	100UH		
L019	L40-1011-04	FERRI INDUCTOR	100UH		
L020	L40-1011-04	FERRI INDUCTOR	100UH		
L021	L40-4701-03	FERRI INDUCTOR	47UH		
L022	L40-6801-03	FERRI INDUCTOR	68UH		
NL001	NE-2B	NEON LAMP			
NL002	NE-2B	NEON LAMP			
NL003	NE-2B	NEON LAMP			
NL004	NE-2B	NEON LAMP			
P002	E40-0673-05	PIN CONNECTOR	6 CONTACT		
P009	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P010	E40-0916-05	PIN CONNECTOR	9P		
P011	E40-1016-05	PIN CONNECTOR	10P		
P012	E40-1016-05	PIN CONNECTOR	10P		
P013	E40-0873-05	PIN CONNECTOR	8 CONTACT		
P014	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P015	E40-0373-05	PIN CONNECTOR	3 CONTACT		
P016	E40-0373-05	PIN CONNECTOR	3 CONTACT		
P017	E40-0373-05	PIN CONNECTOR	3 CONTACT		
P018	E40-0704-05	PIN CONNECTOR	7P		
P019	E40-0335-05	PIN CONNECTOR	3P		
P020	E40-0335-05	PIN CONNECTOR	3P		
P021	E40-0373-05	PIN CONNECTOR	3 CONTACT		
P022	NO USE				
P023	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P048	E23-0046-04	TERMINAL			
P049	E23-0046-04	TERMINAL			
P057	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P058	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P059	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P060	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P061	E40-0273-05	PIN CONNECTOR	2 CONTACT		
Q001	2SC2785(F)	TR. SI, NPN			
Q002	2SA1005(K)	TR. SI, PNP			
Q003	2SC2786(K)	TR. SI, NPN			
Q004	2SK117(Y)	FET. N-CHANNEL			
Q005	2SK117(Y)	FET. N-CHANNEL			
Q006	2SC2786(K)	TR. SI, NPN			
Q007	2SC2786(K)	TR. SI, NPN			
Q008	NO USE				
Q009	2SA1005(K)	TR. SI, PNP			
Q010	2SC2785(F)	TR. SI, NPN			
Q011	2SC2785(F)	TR. SI, NPN			
Q012	2SA1175(F)	TR. SI, PNP			
Q013	2SC2785(F)	TR. SI, NPN			
Q014	2SC2785(F)	TR. SI, NPN			
Q015	2SA1175(F)	TR. SI, PNP			
Q016	2SC1215(T,S)	TR. SI, NPN			
Q017	2SC1215(T,S)	TR. SI, NPN			
Q018	2SA1005(K)	TR. SI, PNP			
Q019	2SA1005(K)	TR. SI, PNP			
Q020	2SA1175(F)	TR. SI, PNP			
Q021	2SA1175(F)	TR. SI, PNP			
Q022	2SC2785(F)	TR. SI, NPN			
Q023	2SC2785(F)	TR. SI, NPN			
Q024	2SC2785(F)	TR. SI, NPN			
Q025	2SC2785(F)	TR. SI, NPN			
Q026	2SA1175(F)	TR. SI, PNP			
Q027	2SA1175(F)	TR. SI, PNP			
Q028	2SC2785(F)	TR. SI, NPN			
Q029	2SA1175(F)	TR. SI, PNP			
Q030	2SA1175(F)	TR. SI, PNP			
Q031	2SC2785(F)	TR. SI, NPN			
Q032	2SC2785(F)	TR. SI, NPN			
Q033	2SA1175(F)	TR. SI, PNP			
Q034	2SA1175(F)	TR. SI, PNP			
Q035	2SC2785(F)	TR. SI, NPN			
Q036	2SC2912(S)	TR. SI, NPN			
Q037	2SA1210(S)	TR. SI, PNP			
Q038	2SC2785(F)	TR. SI, NPN			
Q039	2SC2912(S)	TR. SI, NPN			
Q040	2SA1210(S)	TR. SI, PNP			
Q041	2SA1005(K)	TR. SI, PNP			
Q042	2SA1005(K)	TR. SI, PNP			
Q043	2SK336	FET, N-CHANNEL			
Q044	2SK336	FET, N-CHANNEL			
Q045	2SC2785(F)	TR. SI, NPN			
Q046	2SC2912(S)	TR. SI, NPN			
Q047	2SA1210(S)	TR. SI, PNP			
Q048	2SC2785(F)	TR. SI, NPN			
Q049	2SC2912(S)	TR. SI, NPN			
Q050	2SA1210(S)	TR. SI, PNP			
Q051	2SA1175(F)	TR. SI, PNP			
Q052	2SD613(E)	TR. SI, NPN			
Q053	NO USE				
Q054	2SA1175(F)	TR. SI, PNP			
Q055	2SD1262A(Q)	TR, SI, NPN			
Q056	2SB939A(Q)	TR. SI, PNP			
Q057	2SC2785(F)	TR. SI, NPN			
Q058	2SC2785(F)	TR. SI, NPN			
Q059	2SA1175(F)	TR. SI, PNP			
Q060	2SC2785(F)	TR. SI, NPN			
R001	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R002	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R003	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R004	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R005	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R006	RD14BB2C681J	RES. CARBON	680	5%	1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R007	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R008	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R009	RN14BK2E4700F	RES. METAL FILM	470	1%	1/4W
R010	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R011	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R012	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R013	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R014	RN14BK2E3900F	RES. METAL FILM	390	1%	1/4W
R015	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R016	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R017	RN14BK2E1004F	RES. METAL FILM	1M	1%	1/4W
R018	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R019	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R020	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R021	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R022	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R023	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R024	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R025	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R026	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R027	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R028	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R029	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R030	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R031	NO USE				
R032	RD14BB2E105J	RES. CARBON	1M	5%	1/4W
R033	RD14BB2E105J	RES. CARBON	1M	5%	1/4W
R034	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R035	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R036	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R037	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R038	RD14BB2E393J	RES. CARBON	39K	5%	1/4W
R039	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R040	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R041	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R042	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R043	RD14BB2E393J	RES. CARBON	39K	5%	1/4W
R044	RD14BB2E393J	RES. CARBON	39K	5%	1/4W
R045	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R046	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R047	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R048	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R049	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R050	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R051	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R052	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R053	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R054	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R055	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R056	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R057	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R058	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R059	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R060	NO USE				
R061	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R062	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R063	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R064	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R065	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R066	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R067	RD14BB2E123J	RES. CARBON	12K	5%	1/4W
R068	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R069	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R070	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R071	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R072	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R073	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R074	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R075	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R076	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R077	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R078	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R079	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R080	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R081	RD14BB2C820J	RES. CARBON	82	5%	1/6W
R082	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R083	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R084	RD14BB2C820J	RES. CARBON	82	5%	1/6W
R085	RD14BB2E301J	RES. CARBON	300	5%	1/4W
R086	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R087	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R088	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R089	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R090	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R091	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R092	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R093	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R094	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R095	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R096	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R097	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R098	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R099	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R100	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R101	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R102	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R103	RD14BB2E181J	RES. CARBON	180	5%	1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION			
R104	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R105	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R106	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R107	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R108	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R109	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R110	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R111	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R112	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R113	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R114	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R115	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R116	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R117	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R118	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R119	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R120	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R121	RD14BB2E683J	RES. CARBON	68K	5%	1/4W
R122	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R123	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R124	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R125	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R126	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R127	RD14BB2E683J	RES. CARBON	68K	5%	1/4W
R128	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R129	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R130	NO USE				
R131	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R132	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R133	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R134	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R135	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R136	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R137	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R138	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R139	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R140	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R141	RD14BB2E221J	RES. CARBON	220	5%	1/4W
R142	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R143	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R144	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R145	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R146	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R147	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R148	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R149	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R150	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R151	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R152	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R153	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R154	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R155	RN14BK2H1302F	RES. METAL FILM	13K	1%	1/2W
R156	RN14BK2E2401F	RES. METAL FILM	2.4K	1%	1/4W
R157	RN14BK2E82R0F	RES. METAL FILM	82.0	1%	1/4W
R158	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R159	RD14BY2H912J	RES. CARBON	9.1K	5%	1/2W
R160	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R161	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R162	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R163	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R164	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R165	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R166	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R167	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R168	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R169	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R175	R92-1026-05	RES. METAL FILM	3.3M		
R176	R92-1047-05	RES. METAL FIXED	15M	1%	1W
R177	RN14BK2E1543F	RES. METAL FILM	154K	1%	1/4W
R178	RD14BB2E154J	RES. CARBON	150K	5%	1/4W
R179	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R180	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R181	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R182	R92-1058-05	RES. METAL FILM	15M	5%	1W
R183	R92-1057-05	RES. METAL FILM	2.2M	5%	1/2W
R184	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R185	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R186	R92-1034-05	RES. METAL FILM	47M		
R187	R92-1034-05	RES. METAL FILM	47M		
R188	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R189	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R190	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R191	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R192	RN14BK2E4300F	RES. METAL FILM	430	1%	1/4W
R193	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R194	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R195	RD14BB2E912J	RES. CARBON	9.1K	5%	1/4W
R196	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R197	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R198	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R199	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R200	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R201	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R202	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R203	RD14BB2C393J	RES. CARBON	39K	5%	1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R204	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R205	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R206	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R207	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R208	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R209	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R210	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R211	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R212	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R213	RD14BB2C563J	RES. CARBON	56K	5%	1/6W
R214	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R215	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R216	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R217	RD14BB2E101J	RES. CARBON	100	5%	1/4W
S001	S33-2501-05	LEVER SWITCH			
S002	S32-4008-05	LEVER SWITCH			
S003	S32-2012-05	LEVER SWITCH			
TC001	C05-0434-05	CAP. TRIMMER	20P		
U001	SN74LS08N	IC, QUAD 2-INPUT AND GATE			
U002	SN74LS00N	IC, QUAD 2-INPUT NAND GATE			
U003	SN74LS112N	IC, DUAL J-K FLIP-FLOP			
U004	SN74LS112N	IC, DUAL J-K FLIP-FLOP			
U005	SN74LS08N	IC, QUAD 2-INPUT AND GATE			
U006	SN74LS08N	IC, QUAD 2-INPUT AND GATE			
U007	SN74LS32N	IC, QUAD 2-INPUT OR GATE			
U008	SN74LS00N	IC, QUAD 2-INPUT NAND GATE			
U009	TL082CP	IC	OP AMP.		
U010	NJM4558D	IC, DUAL OP-AMP			
U011	MC10107L	IC, QUAD 2-INPUT EXC OR/NOR			
U012	MC10104L	IC, QUAD 2-INPUT AND GATE			
VR001	R12-0541-05	RES. SEMI FIXED	100 B		
VR002	R12-4508-05	RES. SEMI FIXED	50KB		
VR003	R12-0541-05	RES. SEMI FIXED	100 B		
VR004	R12-1519-05	RES. SEMI FIXED	1K B		
VR005	R12-5517-05	RES. SEMI FIXED	100KB		
VR006	R12-5517-05	RES. SEMI FIXED	100KB		
VR007	R10-3502-05	V.R.	10KB X2		
VR008	R10-9503-05	V.R. WITH SW	2KBX10KB		
VR009	R06-1502-05	V.R.	2K B		

SWEEP UNIT

(X74-1380-00)

REF.NO	PARTS NO	NAME & DESCRIPTION			
X74-3	E04-0251-05	BNC RECEPTACLE			
	E23-0046-04	TERMINAL			
	E23-0527-04	EARTH PLATE			
	E31-2170-05	JUMPING WIRE			
	E31-2386-05	LEAD WIRE WITH CONNECTOR			
	E33-4041-00	WIRE ASS'Y			
X74-4	F10-1571-04	SHIELD PLATE			
X74-5	J19-1636-14	BNC HOLDER			
	J25-5018-22	PCB (UNMOUNTED)			
	N15-1090-46	WASHER			
	N30-3006-46	SCREW, PAN HD	M 3X6		
C001	CQ93M1H473K	CAP. MYLAR	0.047	10%	50V
C002	CM93BD2A470J	CAP. MICA	47P	5%	100V
C003	CQ92FM1H103K	CAP. MYLAR	0.01	10%	50V
C004	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C005	CE04BW1E220M	CAP. ELECTRO	22	20%	25V
C006	NO USE				
C007	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C008	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C009	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C010	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C011	NO USE				
C012	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C013	CK45B1H102K	CAP. CERAMIC	1000P	10%	50V
C014	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C015	CE04FW1H010M	CAP. ELECTRO	1	20%	50V
C016	CE04W1A101M	CAP. ELECTRO	100	20%	10V
C017	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C018	NO USE				
C019	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C020	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C021	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C022	NO USE				
C023	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C024	C91-0574-05	CAP. MYLAR	1	5%	
C025	C91-0573-05	CAP. MYLAR	0.01	1%	
C026	CQ92FM1H102K	CAP. MYLAR	1000P	10%	50V
C027	CM93BD2A101J	CAP. MICA	100P	5%	100V
C028	NO USE				
C029	C91-0574-05	CAP. MYLAR	1	5%	
C030	C91-0573-05	CAP. MYLAR	0.01	1%	
C031	CQ92FM1H102K	CAP. MYLAR	1000P	10%	50V
C032	CM93BD2A101J	CAP. MICA	100P	5%	100V
C033	NO USE				

REF.NO	PARTS NO	NAME & DESCRIPTION			
C034	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C035	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C036	NO USE				
C037	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C038	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C039	CQ93M1H682J	CAP. MYLAR	6800P	5%	50V
C040	CQ93M1H223K	CAP. MYLAR	0.022	10%	50V
C041	CE04W1E4R7M	CAP. ELECTRO	4.7	20%	25V
C042	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C043	C90-0915-05	CAP. ELECTRO	6800	20%	35V
C044	C90-0915-05	CAP. ELECTRO	6800	20%	35V
C045	C90-0916-05	CAP. ELECTRO	4700	20%	16V
C046	C90-0910-05	CAP. ELECTRO	100	20%	200V
C047	CE04W2A221M	CAP. ELECTRO	220	20%	100V
C048	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C049	CE04FW1A101M	CAP. ELECTRO	100	20%	10V
C050	CE04W1A471M	CAP. ELECTRO	470	20%	10V
C051	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C052	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C053	CE04FW1A101M	CAP. ELECTRO	100	20%	10V
C054	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C055	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C056	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C057	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C058	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C059	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C060	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C061	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C062	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C063	CE04W1J100M	CAP. ELECTRO	10	20%	63V
C064	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C065	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C066	NO USE				
C067	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C068	CE04W2C100	CAP. ELECTRO	10		160V
C069	CE04W1A471M	CAP. ELECTRO	470	20%	10V
C070	CE04W1E331M	CAP. ELECTRO	330	20%	25V
C071	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C072	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C073	CE04W1E331M	CAP. ELECTRO	330	20%	25V
C074	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C075	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C076	CE04W2E4R7	CAP. ELECTRO	4.7		250V
C077	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C078	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C079	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C080	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C081	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C082	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C083	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C084	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C085	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C086	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C087	NO USE				
C088	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C089	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C090	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C091	CC45SL1H391J	CAP. CERAMIC	390P	5%	50V
C092	CC45SL1H391J	CAP. CERAMIC	390P	5%	50V
C095	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C096	CK45B1H102K	CAP. CERAMIC	1000P	10%	50V
C103	CE04W1A470M	CAP. ELECTRO	47	20%	10V
C104	CE04W1A470M	CAP. ELECTRO	47	20%	10V
C105	CK45B1H222K	CAP. CERAMIC	2200P	10%	50V
C106	CC45CH1H030C	CAP. CERAMIC	3P	0.25P	50V
C107	NO USE				
C108	CC45CH1H040C	CAP. CERAMIC	4P	0.25P	50V
C109	NO USE				
C110	CE04W1E470M	CAP. ELECTRO	47	20%	25V
C111	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C112	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
D001	1S1544A	DIODE			
D002	DS442X	DIODE, SILICON	SWITCHING		
D003	DS442X	DIODE, SILICON	SWITCHING		
D004	DS442X	DIODE, SILICON	SWITCHING		
D005	NO USE				
D006	DS442X	DIODE, SILICON	SWITCHING		
D007	DS442X	DIODE, SILICON	SWITCHING		
D008	NO USE				
D009	DS442X	DIODE, SILICON	SWITCHING		
D010	DS442X	DIODE, SILICON	SWITCHING		
D011	DS442X	DIODE, SILICON	SWITCHING		
D012	DS422X	DIODE, SILICON	SWITCHING		
D013	NO USE				
D014	S4VB40F1	DIODE, BRIDGE			
D015	S2VB40F	DIODE, BRIDGE			
D016	S2VB40F	DIODE, BRIDGE			
D017	S1QB60	DIODE			
D018	DS442X	DIODE, SILICON	SWITCHING		
D019	WZ-085	DIODE, ZENER	8.5V		
D020	WZ-150	DIODE, ZENER	15V		
D021	WZ-050	DIODE, ZENER	5V		
D022	WZ-085	DIODE, ZENER	8.5V		

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
D023	WZ-150	DIODE, ZENER 15V
D024	DS442X	DIODE, SILICON SWITCHING
D025	DS442X	DIODE, SILICON SWITCHING
D029	DS422X	DIODE, SILICON SWITCHING
D030	GMA-01	DIODE
D031	DS442X	DIODE, SILICON SWITCHING
D032	DS422X	DIODE, SILICON SWITCHING
D033	DS422X	DIODE, SILICON SWITCHING
L001	L40-4701-03	FERRI INDUCTOR 47UH
L002	L40-4701-03	FERRI INDUCTOR 47UH
L003	L40-4701-03	FERRI INDUCTOR 47UH
L004	NO USE	
L005	L40-1011-04	FERRI INDUCTOR 100UH
L006	L40-1011-04	FERRI INDUCTOR 100UH
L007	L40-1011-13	FERRI INDUCTOR 100UH
L008	L40-1011-04	FERRI INDUCTOR 100UH
L009	L40-1011-04	FERRI INDUCTOR 100UH
L010	L40-1011-13	FERRI INDUCTOR 100UH
L011	L40-1011-13	FERRI INDUCTOR 100UH
L012	L40-4701-03	FERRI INDUCTOR 47UH
P005	E40-0273-05	PIN CONNECTOR 2 CONTACT
P013	E40-1173-05	PIN CONNECTOR
P014	NO USE	
P015	E40-0373-05	PIN CONNECTOR 3 CONTACT
P022	E40-0673-05	PIN CONNECTOR 6 CONTACT
P023	E40-0473-05	PIN CONNECTOR 4 CONTACT
P024	E40-1073-05	PIN CONNECTOR 10P
P039	E40-0373-05	PIN CONNECTOR 3 CONTACT
P040	E40-0446-05	CONNECTOR 4P
P041	E40-0746-05	PIN CONNECTOR 7P
P042	E40-0773-05	PIN CONNECTOR 7P
P043	E40-0773-05	PIN CONNECTOR 7P
P044	E40-0373-05	PIN CONNECTOR 3 CONTACT
P045	E40-0473-05	PIN CONNECTOR 4 CONTACT
P046	E40-0273-05	PIN CONNECTOR 2 CONTACT
P047	E40-0273-05	PIN CONNECTOR 2 CONTACT
P058	E40-0273-05	PIN CONNECTOR 2 CONTACT
P059	NO USE	
P060	E40-0473-05	PIN CONNECTOR 4 CONTACT
Q001	2SK107(3)	FET, N-CHANNEL
Q002	2SK107(3)	FET, N-CHANNEL
Q003	2SC1215(T,S)	TR. SI, NPN
Q004	2SC1215(T,S)	TR. SI, NPN
Q005	2SC1215(T,S)	TR. SI, NPN
Q006	2SA1175(F)	TR. SI, PNP
Q007	2SK117(Y)	FET. N-CHANNEL
Q008	2SC2785(F)	TR. SI, NPN
Q009	2SC2785(F)	TR. SI, NPN
Q010	2SC2785(F)	TR. SI, NPN
Q011	2SA1175(F)	TR. SI, PNP
Q012	2SK117(Y)	FET. N-CHANNEL
Q013	2SC2785(F)	TR. SI, NPN
Q014	2SC2785(F)	TR. SI, NPN
Q015	2SC2785(F)	TR. SI, NPN
Q016	2SA1175(F)	TR. SI, PNP
Q017	2SC2785(F)	TR. SI, NPN
Q018	2SC2785(F)	TR. SI, NPN
Q019	2SC2785(F)	TR. SI, NPN
Q020	2SA1239(F)	TR. SI, PNP-DUAL
Q021	NO USE	
Q022	2SA1175(F)	TR. SI, PNP
Q023	2SC2785(F)	TR. SI, NPN
Q024	2SC2785(F)	TR. SI, NPN
Q025	2SC2785(F)	TR. SI, NPN
Q026	2SC2785(F)	TR. SI, NPN
Q027	2SA1175(F)	TR. SI, PNP
Q028	2SA1175(F)	TR. SI, PNP
Q029	2SA1175(F)	TR. SI, PNP
Q030	2SC2785(F)	TR. SI, NPN
Q031	2SC2271(D)	TR. SI, NPN
Q032	2SC2271(D)	TR. SI, NPN
Q033	2SA1175(F)	TR. SI, PNP
Q034	2SK117(O)	FET, N-CHANNEL
Q035	2SC2785(F)	TR. SI, NPN
Q036	2SA1175(F)	TR. SI, PNP
Q037	2SK117(GR)	FET. N-CHANNEL
Q038	2SK117(GR)	FET. N-CHANNEL
Q039	NO USE	
Q040	2SC2785(F)	TR. SI, NPN
Q041	2SA1175(F)	TR. SI, PNP
Q042	2SA1175(F)	TR. SI, PNP
Q043	2SA1175(F)	TR. SI, PNP
Q044	2SA1175(F)	TR. SI, PNP
R001	RD14BB2E105J	RES. CARBON 1M 5% 1/4W
R002	RN14BK2E9003F	RES. METAL FILM 900K 1% 1/4W
R003	RN14BK2E1113F	RES. METAL FILM 111K 1% 1/4W
R004	RD14BB2E430J	RES. CARBON 43 5% 1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION
R005	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
R006	RD14BB2E104J	RES. CARBON 100K 5% 1/4W
R007	RD14BB2E181J	RES. CARBON 180 5% 1/4W
R008	RD14BB2C181J	RES. CARBON 180 5% 1/6W
R009	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R010	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R011	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R012	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R013	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R014	RN14BK2E4302F	RES. METAL FILM 43K 1% 1/4W
R015	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R016	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R017	RD14BB2E473J	RES. CARBON 47K 5% 1/4W
R018	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R019	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R020	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R021	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R022	RD14BB2E821J	RES. CARBON 820 5% 1/4W
R023	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R024	NO USE	
R025	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R026	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R027	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R028	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R029	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R030	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R031	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R032	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R033	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R034	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R035	RD14BB2E681J	RES. CARBON 680 5% 1/4W
R036	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R037	RD14BB2E392J	RES. CARBON 3.9K 5% 1/4W
R038	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R039	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R040	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R041	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R042	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R043	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R044	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R045	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R046	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R047	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R048	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R049	RD14BB2C820J	RES. CARBON 82 5% 1/6W
R050	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R051	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R052	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R053	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R054	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R055	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R056	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R057	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R058	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R059	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R060	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R061	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R062	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R063	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R064	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R065	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R066	RD14BB2E820J	RES. CARBON 82 5% 1/4W
R067	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R068	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R069	RN14BK2E3602F	RES. METAL FILM 36K 1% 1/4W
R070	RN14BK2E3302F	RES. METAL FILM 33K 1% 1/4W
R071	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R072	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R073	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R074	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R075	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R076	RD14BB2C182J	RES. CARBON 1.8K 5% 1/6W
R077	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R078	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R079	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R080	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R081	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R082	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R083	RS14GB3D103J	RES. METAL FILM 10K 5% 2W
R084	RN14BK2H3004F	RES. METAL FILM 3M 1% 1/2W
R085	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
R086	RN14BK2E5003F	RES. METAL FILM 500K 1% 1/4W
R087	RN14BK2E3003F	RES. METAL FILM 300K 1% 1/4W
R088	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W
R089	RN14BK2E5002F	RES. METAL FILM 50K 1% 1/4W
R090	RN14BK2E3002F	RES. METAL FILM 30K 1% 1/4W
R091	RN14BK2E1002F	RES. METAL FILM 10K 1% 1/4W
R092	RN14BK2E5001F	RES. METAL FILM 5K 1% 1/4W
R093	RN14BK2E5001F	RES. METAL FILM 5K 1% 1/4W
R094	RD14BB2E113J	RES. CARBON 11K 5% 1/4W
R095	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R096	RS14GB3D103J	RES. METAL FILM 10K 5% 2W
R097	RN14BK2H3004F	RES. METAL FILM 3M 1% 1/2W
R098	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
R099	RN14BK2E5003F	RES. METAL FILM 500K 1% 1/4W
R100	RN14BK2E3003F	RES. METAL FILM 300K 1% 1/4W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R101	RN14BK2E1003F	RES. METAL FILM	100K	1%	1/4W
R102	RN14BK2E5002F	RES. METAL FILM	50K	1%	1/4W
R103	RN14BK2E3002F	RES. METAL FILM	30K	1%	1/4W
R104	RN14BK2E1002F	RES. METAL FILM	10K	1%	1/4W
R105	RN14BK2E5001F	RES. METAL FILM	5K	1%	1/4W
R106	RN14BK2E5001F	RES. METAL FILM	5K	1%	1/4W
R107	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R108	RN14BK2E3602F	RES. METAL FILM	36K	1%	1/4W
R109	RN14BK2E3302F	RES. METAL FILM	33K	1%	1/4W
R110	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R111	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R112	RD14BB2E113J	RES. CARBON	11K	5%	1/4W
R113	RD14BB2E912J	RES. CARBON	9.1K	5%	1/4W
R114	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R115	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R116	RD14BB2E113J	RES. CARBON	11K	5%	1/4W
R117	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R118	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R119	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R120	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R121	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R122	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R123	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R124	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R125	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R126	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R127	RD14BB2E622J	RES. CARBON	6.2K	5%	1/4W
R128	RD14BB2E622J	RES. CARBON	6.2K	5%	1/4W
R129	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R130	RD14BB2E104J	RES. CARBON	100K	5%	1/4W
R131	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R132	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R133	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R134	RD14BB2E113J	RES. CARBON	11K	5%	1/4W
R135	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R136	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R137	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R138	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R139	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R140	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R141	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R142	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R143	NO USE				
R144	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R145	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R146	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R147	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R148	RD14BB2E221J	RES. CARBON	220	5%	1/4W
R149	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R150	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R151	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R152	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R153	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R154	RD14BB2C822J	RES. CARBON	8.2K	5%	1/6W
R155	RN14BK2E5001F	RES. METAL FILM	5K	1%	1/4W
R156	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R157	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R158	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R159	RD14BB2C561J	RES. CARBON	560	5%	1/6W
R160	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R161	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W
R162	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R163	RD14BB2C561J	RES. CARBON	560	5%	1/6W
R164	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R165	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R166	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R167	RD14BB2C561J	RES. CARBON	560	5%	1/6W
R168	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R169	RN14BK2E5002F	RES. METAL FILM	50K	1%	1/4W
R170	RD14BB2E123J	RES. CARBON	12K	5%	1/4W
R171	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R172	RN14BK2E1203F	RES. METAL FILM	120K	1%	1/4W
R173	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R174	RD14BB2E123J	RES. CARBON	12K	5%	1/4W
R175	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R176	RD14BY2H333J	RES. CARBON	33K	5%	1/2W
R177	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R178	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R179	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R180	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R181	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R182	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R183	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R184	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R185	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R186	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R187	RD14BY2H103J	RES. CARBON	10K	5%	1/2W
R188	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R189	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R190	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R191	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R192	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R193	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R194	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R195	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R196	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R197	RD14BB2C363J	RES. CARBON	36K	5%	1/6W
R202	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R203	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R204	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R205	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R206	NO USE				
R207	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R217	RD14BB2E270J	RES. CARBON	27	5%	1/4W
R218	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R219	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R220	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R221	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R224	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R225	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R228	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R229	NO USE				
R230	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R231	NO USE				
R232	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R233	NO USE				
R234	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R235	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
S001	S32-4008-05	LEVER SWITCH			
S002	S33-4503-05	LEVER SWITCH			
S003	S32-4008-05	LEVER SWITCH			
S004	NO USE				
S005	S29-5502-05	ROTARY SWITCH			
TC001	C05-0422-05	CAP. TRIMMER	20P		
TC002	C05-0421-05	CAP. TRIMMER	10P		
TC003	C05-0420-05	CAP. TRIMMER	6P		
TC004	C05-0422-05	CAP. TRIMMER	20P		
TC005	C05-0422-05	CAP. TRIMMER	20P		
TC006	C05-0422-05	CAP. TRIMMER	20P		
U001	MC10131L	IC, DUAL D-FFS			
U002	MC10103L	IC, QUAD 2-INPUT OR GATE			
U003	MC10104L	IC, QUAD 2-INPUT AND GATE			
U004	MC10103L	IC, QUAD 2-INPUT OR GATE			
U005	MC10102L	IC, QUAD 2-INPUT NOR GATE			
U006	MC10102L	IC, QUAD 2-INPUT NOR GATE			
U007	MC10105L	IC DIGITAL			
U008	NJM4558D	IC, DUAL OP-AMP			
U009	NJM4558D	IC, DUAL OP-AMP			
U010	NJM4558D	IC, DUAL OP-AMP			
U011	NJM4558D	IC, DUAL OP-AMP			
VR001	R12-2512-05	RES. SEMI FIXED	5K B		
VR002	R12-2512-05	RES. SEMI FIXED	5K B		
VR003	R12-0540-05	RES. SEMI FIXED	500 B		
VR004	R12-0540-05	RES. SEMI FIXED	500 B		
VR005	R12-2512-05	RES. SEMI FIXED	5K B		
VR006	R12-1518-05	RES. SEMI FIXED	2K B		
VR007	R12-1518-05	RES. SEMI FIXED	2K B		
VR008	R12-1518-05	RES. SEMI FIXED	2K B		
VR009	R12-1518-05	RES. SEMI FIXED	2K B		
VR010	R10-3502-05	V.R.	10KB X2		
VR011	R10-3502-05	V.R.	10KB X2		
VR012	R12-0540-05	RES. SEMI FIXED	500 B		
VR013	R12-3521-05	RES. SEMI FIXED	20K B		
VR014	R12-3520-05	RES. SEMI FIXED	10K B		

CONNECTION UNIT

(X77-1300-00)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E31-2170-05	JUMPING WIRE			
	J25-5019-13	PCB (UNMOUNTED)			
C001	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C002	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C003	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C004	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C005	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C006	CE04FW1V330M	CAP. ELECTRO	33	20%	35V
C007	CE04FW1V330M	CAP. ELECTRO	33	20%	35V
C008	NO USE				
C009	CE04W1E221M	CAP. ELECTRO	220	20%	25V
C010	CE04W1E221M	CAP. ELECTRO	220	20%	25V
C011	NO USE				
C012	CE04FW1A101M	CAP. ELECTRO	100	20%	10V
C013	C91-0572-05	CAP. CERAMIC	0.1		12V
C014	CQ93M1H103J	CAP. MYLAR	0.01	5%	50V
C015	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C016	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C017	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C018	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C022	CK45B1H103K	CAP. CERAMIC	0.01	10%	50V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
D001	WZ-085	DIODE, ZENER	8.5V		
D002	DS442X	DIODE, SILICON	SWITCHING		
D003	DS442X	DIODE, SILICON	SWITCHING		
D004	DS442X	DIODE, SILICON	SWITCHING		
P007	E40-1111-05	PIN CONNECTOR	11P		
P008	E40-1111-05	PIN CONNECTOR	11P		
P009	NO USE				
P010	E40-0911-05	PIN CONNECTOR	9P		
P011	E40-1011-05	PIN CONNECTOR	10P		
P012	E40-1011-05	PIN CONNECTOR	10P		
P022	E40-0673-05	PIN CONNECTOR	6 CONTACT		
P023	NO USE				
P024	E40-1073-05	PIN CONNECTOR	10P		
P025	E40-0673-05	PIN CONNECTOR	6 CONTACT		
P026	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P027	E40-0373-05	PIN CONNECTOR	3 CONTACT		
P028	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P029	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P030	E40-0373-05	PIN CONNECTOR	3 CONTACT		
P031	E40-0373-05	PIN CONNECTOR	3 CONTACT		
P032	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P033	E40-7203-05	PIN CONNECTOR	3P		
P034	E40-0604-05	PIN CONNECTOR	6P		
P035	E40-7204-05	PIN CONNECTOR	4P		
P036	E40-0804-05	PIN CONNECTOR	8P		
P037	E40-0804-05	PIN CONNECTOR	8P		
Q001	2SC1384(R)	TR, SI, NPN			
Q002	2SA684(R)	TR, SI, PNP			
R001	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R002	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R003	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R004	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R005	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R006	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R007	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R008	RS14GB3D820J	RES. METAL FILM	82	5%	2W
R009	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R010	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R011	RN14BK2E1003F	RES. METAL FILM	100K	1%	1/4W
R012	RN14BK2E9102F	RES. METAL FILM	91K	1%	1/4W
R013	RN14BK2E4302F	RES. METAL FILM	43K	1%	1/4W
R014	RN14BK2E3601F	RES. METAL FILM	3.6K	1%	1/4W
R015	RN14BK2E1300F	RES. METAL FILM	130	1%	1/4W
R016	NO USE				
R017	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R018	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R019	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R020	RD14BB2E221J	RES. CARBON	220	5%	1/4W
R021	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R022	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R023	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R024	RD14BB2C101J	RES. CARBON	100	5%	1/6W
U001	NJM4558D	IC, DUAL OP-AMP			

CRT UNIT

(X81-1250-02)

REF.NO	PARTS NO	NAME & DESCRIPTION
	E01-0103-05	CRT SOCKET
	E23-0503-05	TERMINAL
	J25-2996-24	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM
J016	E31-2390-05	LEAD WIRE WITH CONNECTOR
J017	E31-2390-05	LEAD WIRE WITH CONNECTOR
J018	NO USE	
J019	E31-2388-05	LEAD WIRE WITH CONNECTOR
J020	NO USE	
J021	E31-2387-05	LEAD WIRE WITH CONNECTOR
J022	NO USE	
J023	E31-2389-05	LEAD WIRE WITH CONNECTOR
R003	RD14BB2E473J	RES. CARBON 47K 5% 1/4W

MAIN CHASSIS CS-1040

(Y70-1450-21)

REF.NO	PARTS NO	NAME & DESCRIPTION
	A01-1105-12	CASE
	A01-1106-02	CASE
	A10-1436-02	CHASSIS
	A20-2764-11	PANEL
	A21-1036-02	DECORATIVE PANEL
	A22-0827-13	SUB PANEL
	A22-0831-12	SUB PANEL
	A23-1644-02	REAR PANEL

REF.NO	PARTS NO	NAME & DESCRIPTION
	A33-0502-05	REFLECTOR (FOR LAMP ASS'Y)
	A33-0503-05	REFLECTOR (FOR LAMP ASS'Y)
	B07-0712-13	ESCUTCHEON FOR FILTER
	B19-0726-04	FILTER
	B20-0923-04	SCALE
	B30-0903-15	LED LAMP (RED)
	B30-0940-05	LAMP ASS'Y
	B30-0941-05	LAMP
	B40-2765-04	NAME PLATE (SERIAL NO)
	B41-0710-04	CAUTION LABEL (HIGH VOLTAGE)
	B41-0756-03	CAUTION LABEL
	B50-7511-00	INSTRUCTION MANUAL
	E04-0251-05	BNC RECEPTACLE
	E21-0657-04	TERMINAL (GND)
	E21-0660-04	TERMINAL(CAL)
	E23-0043-04	EARTH LUG
	E23-0513-05	EARTH LUG
	E23-0522-14	EARTH PLATE
	E23-0524-04	EARTH LUG
	E30-0545-05	AC POWER CORD
	E30-1851-05	POWER CORD ASS'Y (JIS)
	E31-2371-05	LEAD WIRE WITH CONNECTOR
	E31-2372-05	LEAD WIRE WITH CONNECTOR
	E31-2391-05	LEAD WIRE WITH CONNECTOR
	E31-2392-05	LEAD WIRE WITH CONNECTOR
	E31-2393-05	LEAD WIRE WITH CONNECTOR
	E31-2394-05	LEAD WIRE WITH CONNECTOR
	E31-2395-05	LEAD WIRE WITH CONNECTOR
	E31-2396-15	LEAD WIRE WITH CONNECTOR
	E31-2397-05	LEAD WIRE WITH CONNECTOR
	E31-2398-15	LEAD WIRE WITH CONNECTOR
	E31-2399-05	LEAD WIRE WITH CONNECTOR
	E31-2400-05	LEAD WIRE WITH CONNECTOR
	E31-2401-05	LEAD WIRE WITH CONNECTOR
	E31-2402-15	LEAD WIRE WITH CONNECTOR
	E31-2403-05	LEAD WIRE WITH CONNECTOR
	E31-2404-05	LEAD WIRE WITH CONNECTOR
	E31-2405-05	LEAD WIRE WITH CONNECTOR
	E31-2406-05	LEAD WIRE WITH CONNECTOR
	E31-2407-15	LEAD WIRE WITH CONNECTOR
	E31-2408-05	LEAD WIRE WITH CONNECTOR
	E31-2409-05	LEAD WIRE WITH CONNECTOR
	E31-2410-05	LEAD WIRE WITH CONNECTOR
	E31-2411-05	LEAD WIRE WITH CONNECTOR
	E31-2412-05	LEAD WIRE WITH CONNECTOR
	E31-2413-05	LEAD WIRE WITH CONNECTOR
	E31-2414-05	LEAD WIRE WITH CONNECTOR
	E31-2415-05	LEAD WIRE WITH CONNECTOR
	E31-2416-05	LEAD WIRE WITH CONNECTOR
	E31-2417-05	LEAD WIRE WITH CONNECTOR
	E31-2418-05	LEAD WIRE WITH CONNECTOR
	E31-2419-05	LEAD WIRE WITH CONNECTOR
	E31-2420-05	LEAD WIRE WITH CONNECTOR
	E31-2478-05	LEAD WIRE WITH CONNECTOR
	E31-2479-05	LEAD WIRE WITH CONNECTOR
	F01-0838-03	HEAT SINK
	F05-1023-05	FUSE 1A
	F05-2023-05	FUSE 2A
	F07-0908-14	PROTECTION COVER
	F10-1567-04	EARTH BAND (FOR H.VOLT BLCKE)
	F11-0981-13	SHIELD CASE
	F20-0639-04	INSULATOR
	G02-0606-14	SPRING FOR HANDLE
	G02-0607-04	SPRING FOR CRT
	G16-0602-04	REFLECTOR SHEET(L)
	G16-0603-04	REFLECTOR SHEET(R)
	H01-5702-04	CARTON BOX
	H10-2817-01	FOAMED STYRENE PAD
	H10-2818-01	FOAMED STYRENE PAD
	H20-1719-04	VINYL COVER
	H25-0016-00	BAG
	H25-0029-04	BAG
	J02-0089-05	LEG
	J10-0100-12	BEZEL
	J13-0033-15	FUSE HOLDER
	J19-1313-05	LEAD HOLDER
	J19-1620-05	CORD CLAMP
	J19-1633-03	HOLDER FOR CRT
	J19-1634-04	HOLDER FOR LEAD
	J19-1635-04	HOLDER FOR LED
	J19-1637-03	HOLDER FOR DELAY LINE
	J21-2906-05	GEAR FOR HANDLE
	J21-2907-05	RING FOR HANDLE
	J21-2970-23	BLACKET FOR CRT
	J21-2979-14	BLACKET FOR SCALE
	J21-2980-04	BRACKET FOR P.C.BOARD
	J21-2983-04	AC CORD BRACKET
	J25-3000-05	P.C.BOARD (FOR LAMP ASS'Y)
	J31-0603-04	COLLAR
	J31-0604-04	COLLAR
	J42-0083-05	BUSHING
	J42-0523-04	BUSHING
	J59-0403-05	NYLON RIVET
	J61-0049-05	WIRE BAND
	J61-0401-05	WIRE BAND
	J61-0515-05	SUPPORT (I TYPE)

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
	J61-0518-05	SUPPORT (T TYPE)
	J61-0519-04	SUPPORT (P.C.BOARD)
	K01-0520-05	HANDLE
	K21-0855-14	KNOB
	K21-0858-04	KNOB
	K21-0860-03	KNOB
	K21-0862-03	KNOB
	K21-0863-03	KNOB
	K21-0864-03	KNOB
	K21-0866-13	KNOB
	K27-0530-04	KNOB FOR LEVER
	L01-9364-05	POWER TRANSFORMER
	L39-0518-05	ROTATOR COIL
	L76-0107-05	DELAY LINE
	N08-0611-04	DRESSED SCREW
	N09-0705-05	SCREW, HEX SOCKET FLAT HD
	N09-0710-05	SCREW, SEMS PAN HD
	N09-0715-04	SCREW, PAN HD M 4X31
	N09-0717-05	SCREW, TRUSS HD M 3X12
	N09-0720-05	SCREW, SEMS PAN HD
	N10-2070-46	NUT, HEX
	N15-1030-41	WASHER, FLAT FOR M3
	N15-1110-46	WASHER
	N19-0704-04	WASHER
	N19-0710-05	WASHER
	N30-3004-46	SCREW, PAN HD M 3X4
	N30-3006-41	SCREW, PAN HD M 3X6
	N30-3008-46	SCREW, PAN HD M 3X8
	N30-4006-41	SCREW, PAN HD M 4X6
	N30-4012-41	SCREW, PAN HD M 4X12
	N32-3008-41	SCREW, FLAT HD M 3X8
	N88-3006-46	SCREW, FLAT HD TAP TITE
	N88-3008-46	SCREW, FLAT HD TAP TITE
	N89-3006-41	SCREW, BINDING TAP TITE
	N89-3010-41	SCREW, BINDING TAP TITE
	R03-3502-15	V.R. 20K B
	R05-3505-05	V.R. 20K B
	R05-8001-05	V.R. 3M B
	R10-9502-05	V.R. 10K,200K B
	R29-0504-05	V.R. 1K B
	SLP520D	LED (RED,GREEN)
	W01-0503-04	CORD WRAP
	W02-0412-05	HIGH VOLTAGE POWER BLOCK
	X73-1530-00	VERTICAL PREAMP UNIT
	X73-1540-00	VERTICAL OUTPUT AMP UNIT
	X74-1370-00	TRIGGER UNIT
	X74-1380-00	SWEEP UNIT
	X75-1150-00	ATTENUATOR UNIT
	X77-1300-00	CONNECTION UNIT
	X81-1250-02	CRT SOCKET UNIT
	Y87-1250-00	PROBE(PC-29)
	150HTM31	CRT
	212-2014-05	TUBE (PLASTIC)
	212-3017-05	TUBE (PLASTIC)
	490-0009-05	TAPE
Q001	2SD1276(Q)	TR, SI, NPN
Q002	2SD1276(Q)	TR, SI, NPN
Q003	2SB950(P,Q)	TR. SI, PNP
Q004	2SB950(P,Q)	TR. SI, PNP
Q005	2SB940(P)	TR. SI, PNP
Q006	2SA1156(K,L)	TR. SI, PNP

VERTICAL PREAMP UNIT

(X73-1530-01)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E23-0526-04	EARTH PLATE			
	E31-2170-05	JUMPING WIRE			
	E33-4042-00	WIRE ASS'Y			
	J25-5021-13	PCB (UNMOUNTED)			
	J31-0604-04	COLLAR			
	K27-0528-04	KNOB FOR PUSH			
C001	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C002	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C003	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C004	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C005	NO USE				
C006	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C007	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C008	CE04BW1E220M	CAP. ELECTRO	22	20%	25V
C011	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C012	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C013	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C014	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C015	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C016	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C017	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C018	CE04FW1A470M	CAP. ELECTRO	47	20%	10V
C021	CE04FW1E100M	CAP. ELECTRO	10	20%	25V
C022	CK45F1H103Z	CAP. CERAMIC	0.01		50V

REF.NO	PARTS NO	NAME & DESCRIPTION			
C023	CC45FCH1H020C	CAP. CERAMIC	2P	0.25P	50V
C024	NO USE				
C025	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C028	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C031	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C032	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C033	CE04FW1E330M	CAP. ELECTRO	33	20%	25V
C034	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C035	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C036	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C037	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C038	CC45FCH1H220J	CAP. CERAMIC	22P	5%	50V
C039	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C044	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C045	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C046	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C047	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C048	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C049	NO USE				
C050	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C051	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C052	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C053	NO USE				
C054	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C055	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C056	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C057	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C058	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C059	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C060	NO USE				
C061	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C062	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C063	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C064	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C065	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C066	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C067	NO USE				
C068	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C069	NO USE				
C070	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C071	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C072	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C073	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C074	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C075	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C076	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C077	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C078	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C079	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C080	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C081	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C082	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C083	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C084	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C085	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C086	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C087	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C088	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C089	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C090	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C091	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C092	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C093	CE04W1J330M	CAP. ELECTRO	33	20%	63V
C094	CK45B2H222K	CAP. CERAMIC	2200P	10%	500V
D001	DS442X	DIODE, SILICON SWITCHING			
D002	DS442X	DIODE, SILICON SWITCHING			
D003	MTZ7.5JC	DIODE, ZENER 7.5V			
D011	DS442X	DIODE, SILICON SWITCHING			
D012	DS442X	DIODE, SILICON SWITCHING			
D021	DS442X	DIODE, SILICON SWITCHING			
D022	DS442X	DIODE, SILICON SWITCHING			
D031	GMA01	DIODE			
D032	GMA01	DIODE			
L001	L40-6882-02	FERRI INDUCTOR 68UH			
P001	E40-0273-05	PIN CONNECTOR 2 CONTACT			
P002	E40-0273-05	PIN CONNECTOR 2 CONTACT			
P003	E40-0273-05	PIN CONNECTOR 2 CONTACT			
P004	E40-0273-05	PIN CONNECTOR 2 CONTACT			
P005	E40-0273-05	PIN CONNECTOR 2 CONTACT			
P006	E40-0473-05	PIN CONNECTOR 4 CONTACT			
P007	E40-1116-05	PIN CONNECTOR 11P			
P008	E40-1116-05	PIN CONNECTOR 11P			
P052	E40-0415-05	PIN CONNECTOR 4 CONTACT			
P055	E40-0673-05	PIN CONNECTOR 6 CONTACT			
P056	E40-0673-05	PIN CONNECTOR 6 CONTACT			

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
Q001	2SA1005(K)	TR, SI, PNP
Q002	2SA1005(K)	TR, SI, PNP
Q003	2SC1215(S,T)	TR, SI, NPN
Q004	2SC1215(S,T)	TR, SI, NPN
Q005	2SC1215(S,T)	TR, SI, NPN
Q006	2SA1005(K)	TR, SI, PNP
Q007	2SA1005(K)	TR, SI, PNP
Q008	2SC1215(S,T)	TR, SI, NPN
Q009	2SC1215(S,T)	TR, SI, NPN
Q010	2SA1005(K)	TR, SI, PNP
Q011	2SC1215(S,T)	TR, SI, NPN
Q012	2SC1215(S,T)	TR, SI, NPN
Q013	2SC1215(S,T)	TR, SI, NPN
Q021	2SA1005(K)	TR, SI, PNP
Q022	2SA1005(K)	TR, SI, PNP
Q023	2SC1215(S,T)	TR, SI, NPN
Q024	2SC1215(S,T)	TR, SI, NPN
Q025	2SC1215(S,T)	TR, SI, NPN
Q026	2SA1005(K)	TR, SI, PNP
Q027	2SA1005(K)	TR, SI, PNP
Q028	2SC1215(S,T)	TR, SI, NPN
Q029	2SC1215(S,T)	TR, SI, NPN
Q030	2SC1215(S,T)	TR, SI, NPN
Q031	2SC1215(S,T)	TR, SI, NPN
Q032	2SC1215(S,T)	TR, SI, NPN
Q033	2SC1215(S,T)	TR, SI, NPN
Q041	2SA1005(K)	TR, SI, PNP
Q042	2SC1215(S,T)	TR, SI, NPN
Q043	2SC1215(S,T)	TR, SI, NPN
Q044	2SC1215(S,T)	TR, SI, NPN
Q045	2SC1215(S,T)	TR, SI, NPN
Q046	2SC1215(S,T)	TR, SI, NPN
Q047	2SC2786(K)	TR, SI, NPN
Q048	2SC2786(K)	TR, SI, NPN
Q049	2SC2786(K)	TR, SI, NPN
Q061	2SC1215(S,T)	TR, SI, NPN
Q062	2SC1215(S,T)	TR, SI, NPN
Q063	2SA1005(K)	TR, SI, PNP
Q064	2SA1005(K)	TR, SI, PNP
Q065	2SA1005(K)	TR, SI, PNP
Q066	2SC2644	TR, SI, NPN
Q067	2SC2644	TR, SI, NPN
Q068	2SC1215(S,T)	TR, SI, NPN
Q069	2SC1215(S,T)	TR, SI, NPN
R001	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R002	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R003	RD14BB2E243J	RES. CARBON 24K 5% 1/4W
R004	RD14BB2E623J	RES. CARBON 62K 5% 1/4W
R005	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R006	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R007	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R008	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R009	RN14BK2E1202F	RES. METAL FILM 12K 1% 1/4W
R010	RN14BK2E1202F	RES. METAL FILM 12K 1% 1/4W
R011	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R012	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R013	NO USE	
R014	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R015	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R016	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R017	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R018	RN14BK2E2701F	RES. METAL FILM 2.7K 1% 1/4W
R019	RN14BK2E5101F	RES. METAL FILM 5.1K 1% 1/4W
R020	RN14BK2E3000F	RES. METAL FILM 300 1% 1/4W
R021	NO USE	
R022	RD14BB2E681J	RES. CARBON 680 5% 1/4W
R023	RD14BB2E151J	RES. CARBON 150 5% 1/4W
R024	RD14BB2E151J	RES. CARBON 150 5% 1/4W
R025	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R026	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R027	RD14BB2E221J	RES. CARBON 220 5% 1/4W
R028	RD14BB2E221J	RES. CARBON 220 5% 1/4W
R029	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R030	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R031	RD14BB2E511J	RES. CARBON 510 5% 1/4W
R032	RD14BB2E431J	RES. CARBON 430 5% 1/4W
R033	RD14BB2E151J	RES. CARBON 150 5% 1/4W
R034	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R035	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R036	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R037	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R038	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R039	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R040	RD14BB2E104J	RES. CARBON 100K 5% 1/4W
R041	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R042	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R043	RN14BK2E4301F	RES. METAL FILM 4.3K 1% 1/4W
R044	RN14BK2E6800F	RES. METAL FILM 680 1% 1/4W
R045	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R046	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R047	NO USE	
R048	RD14BB2E272J	RES. CARBON 2.7K 5% 1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION
R051	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R052	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R053	RD14BB2E243J	RES. CARBON 24K 5% 1/4W
R054	RD14BB2E623J	RES. CARBON 62K 5% 1/4W
R055	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R056	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R057	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R058	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R059	RN14BK2E1202F	RES. METAL FILM 12K 1% 1/4W
R060	RN14BK2E1202F	RES. METAL FILM 12K 1% 1/4W
R061	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R062	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R063	NO USE	
R064	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R065	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R066	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R067	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R068	RN14BK2E2701F	RES. METAL FILM 2.7K 1% 1/4W
R069	RN14BK2E5101F	RES. METAL FILM 5.1K 1% 1/4W
R070	RN14BK2E3000F	RES. METAL FILM 300 1% 1/4W
R071	NO USE	
R072	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R073	RD14BB2E151J	RES. CARBON 150 5% 1/4W
R074	RD14BB2E151J	RES. CARBON 150 5% 1/4W
R075	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R076	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R077	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R078	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R079	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R080	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R081	RD14BB2E511J	RES. CARBON 510 5% 1/4W
R082	RD14BB2E151J	RES. CARBON 150 5% 1/4W
R083	RD14BB2E151J	RES. CARBON 150 5% 1/4W
R084	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R085	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R086	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R087	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R088	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R089	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R090	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R091	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R092	RN14BK2E4301F	RES. METAL FILM 4.3K 1% 1/4W
R093	RN14BK2E6800F	RES. METAL FILM 680 1% 1/4W
R094	RN14BK2E4301F	RES. METAL FILM 4.3K 1% 1/4W
R095	RN14BK2E6800F	RES. METAL FILM 680 1% 1/4W
R096	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R101	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R102	RN14BK2E4700F	RES. METAL FILM 470 1% 1/4W
R103	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R104	RN14BK2E4701F	RES. METAL FILM 4.7K 1% 1/4W
R105	RN14BK2E5601F	RES. METAL FILM 5.6K 1% 1/4W
R106	RN14BK2E2201F	RES. METAL FILM 2.2K 1% 1/4W
R107	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R108	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R109	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R110	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R111	RN14BK2E5101F	RES. METAL FILM 5.1K 1% 1/4W
R112	RN14BK2E2701F	RES. METAL FILM 2.7K 1% 1/4W
R113	RN14BK2E3000F	RES. METAL FILM 300 1% 1/4W
R114	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R115	NO USE	
R116	RD14BB2E132J	RES. CARBON 1.3K 5% 1/4W
R117	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R118	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R119	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R120	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R121	RN14BK2E6800F	RES. METAL FILM 680 1% 1/4W
R122	RN14BK2E4301F	RES. METAL FILM 4.3K 1% 1/4W
R123	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R124	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R125	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R126	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R127	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R128	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R129	RD14BB2E100J	RES. CARBON 10 5% 1/4W
R130	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R131	RD14BB2E680J	RES. CARBON 68 5% 1/4W
R132	RD14BB2E680J	RES. CARBON 68 5% 1/4W
R133	RD14BB2E680J	RES. CARBON 68 5% 1/4W
R151	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R152	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R153	RD14BB2E242J	RES. CARBON 2.4K 5% 1/4W
R154	RD14BB2E242J	RES. CARBON 2.4K 5% 1/4W
R155	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R156	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R157	RD14BB2E272J	RES. CARBON 2.7K 5% 1/4W
R158	RD14BB2E272J	RES. CARBON 2.7K 5% 1/4W
R159	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R160	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R161	RN14BK2E4701F	RES. METAL FILM 4.7K 1% 1/4W
R162	RN14BK2E4701F	RES. METAL FILM 4.7K 1% 1/4W
R163	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R164	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R165	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R166	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R167	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R168	RD14BB2E911J	RES. CARBON	910	5%	1/4W
R169	RD14BB2E911J	RES. CARBON	910	5%	1/4W
R170	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R171	RD14BB2E511J	RES. CARBON	510	5%	1/4W
R172	RD14BB2E112J	RES. CARBON	1.1K	5%	1/4W
R173	RD14BB2E112J	RES. CARBON	1.1K	5%	1/4W
R174	RD14BB2E392J	RES. CARBON	3.9K	5%	1/4W
R175	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R176	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R177	RD14BB2E133J	RES. CARBON	13K	5%	1/4W
R178	RD14BB2E431J	RES. CARBON	430	5%	1/4W
R179	RD14BB2E431J	RES. CARBON	430	5%	1/4W
R180	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R181	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R182	RD14BB2E333J	RES. CARBON	33K	5%	1/4W
R183	RD14BB2E181J	RES. CARBON	180	5%	1/4W
R186	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R187	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R188	RN14BK2E6800F	RES. METAL FILM	680	1%	1/4W
R189	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R190	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R191	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R192	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R193	NO USE				
R194	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W
R195	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R198	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R201	RD14BB2E621J	RES. CARBON	620	5%	1/4W
R202	RD14BB2E621J	RES. CARBON	620	5%	1/4W
R203	RD14BB2E621J	RES. CARBON	620	5%	1/4W
R204	RD14BB2E621J	RES. CARBON	620	5%	1/4W
S001	S42-4510-05	PUSH SWITCH			
TC001	C05-0434-05	CAP. TRIMMER	20P		
TC011	C05-0434-05	CAP. TRIMMER	20P		
TC021	C05-0422-05	CAP. TRIMMER	20P		
TP001	E23-0046-04	TERMINAL			
TP002	E23-0046-04	TERMINAL			
TP003	E23-0046-04	TERMINAL			
TP004	E23-0046-04	TERMINAL			
TP005	E23-0046-04	TERMINAL			
U002	TL082CP	IC, OP-AMP.			
VR001	R05-3506-05	V.R.	10K B		
VR002	R12-3523-05	RES. SEMI FIXED	20K B		
VR003	R12-3522-05	RES. SEMI FIXED	10K B		
VR004	NO USE				
VR005	R12-0543-05	RES. SEMI FIXED	500 B		
VR006	R12-0541-05	RES. SEMI FIXED	100 B		
VR011	R05-3506-05	V.R.	10K B		
VR012	R12-3523-05	RES. SEMI FIXED	20K B		
VR013	R12-3522-05	RES. SEMI FIXED	10K B		
VR014	R12-0543-05	RES. SEMI FIXED	500 B		
VR015	R12-0543-05	RES. SEMI FIXED	500 B		
VR016	R12-0541-05	RES. SEMI FIXED	100 B		
VR021	R12-3521-05	RES. SEMI FIXED	20K B		
VR022	R12-2512-05	RES. SEMI FIXED	5K B		
VR023	R12-0421-05	RES. SEMI FIXED	100 B		
VR031	R12-0541-05	RES. SEMI FIXED	100 B		
VR032	R12-0541-05	RES. SEMI FIXED	100 B		
VR033	NO USE				
VR034	R12-1520-05	RES. SEMI FIXED	2KB		
VR035	NO USE				
VR036	R12-1517-05	RES. SEMI FIXED	1K B		

VERTICAL FINAL UNIT

(X73-1540-01)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E31-2170-05	JUMPING WIRE			
	F02-0511-05	HEAT SINK			
	F02-0512-05	HEAT SINK			
	J21-2981-04	BRACKET FOR TR			
	J25-5020-13	PCB (UNMOUNTED)			
	J30-0605-05	SPACER			
	212-1018-05	TUBE (PLASTIC)			
C001	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C002	CC45FCH1H060D	CAP. CERAMIC	6P	0.5P	50V
C003	CK45B1H332K	CAP. CERAMIC	3300P	10%	50V
C004	NO USE				
C005	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C006	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C007	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C008	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C009	CC45CH1H680J	CAP. CERAMIC	68P	5%	50V
C010	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C011	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C012	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C015	CE04FW1E470M	CAP. ELECTRO	47	20%	25V
C016	CE04FW1E220M	CAP. ELECTRO	22	20%	25V
C017	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C020	CE04W1J330M	CAP. ELECTRO	33	20%	63V
C021	CE04W1J330M	CAP. ELECTRO	33	20%	63V
C022	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C023	CK45B1H472K	CAP. CERAMIC	4700P	10%	50V
C024	CC45CH1H270J	CAP. CERAMIC	27P	5%	50V
D001	WZ-100	DIODE, ZENER	10V		
D002	WZ-100	DIODE, ZENER	10V		
L001	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L002	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L003	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L004	L40-4782-13	FERRI INDUCTOR	0.47UH	20%	
L005	NO USE				
P006	E40-0473-05	PIN CONNECTOR	4 CONTACT		
P009	E40-0273-05	PIN CONNECTOR	2 CONTACT		
P050	E40-0202-05	PIN CONNECTOR	2P		
P051	E40-0202-05	PIN CONNECTOR	2P		
P052	E40-0444-05	PIN CONNECTOR	4P		
Q001	2SA1206(K)	TR. SI, PNP			
Q002	2SA1206(K)	TR. SI, PNP			
Q003	2SC2644	TR. SI, NPN			
Q004	2SC2644	TR. SI, NPN			
Q005	2SC2644	TR. SI, NPN			
Q006	2SC2644	TR. SI, NPN			
Q007	2SC1164(O)	TR. SI, NPN			
Q008	2SC1164(O)	TR. SI, NPN			
Q009	2SC1164(O)	TR. SI, NPN			
Q010	2SC1164(O)	TR. SI, NPN			
R001	RD14BB2E910J	RES. CARBON	91	5%	1/4W
R002	RD14BB2E910J	RES. CARBON	91	5%	1/4W
R003	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R004	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R005	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R006	RD14BB2E132J	RES. CARBON	1.3K	5%	1/4W
R007	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R008	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R009	RD14BB2E562J	RES. CARBON	5.6K	5%	1/4W
R010	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R011	RD14BB2E331J	RES. CARBON	330	5%	1/4W
R012	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R013	RD14BB2E5R6J	RES. CARBON	5.6	5%	1/4W
R014	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R015	RD14BB2E241J	RES. CARBON	240	5%	1/4W
R016	RD14BB2E163J	RES. CARBON	16K	5%	1/4W
R017	NO USE				
R018	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R019	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R020	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R021	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R022	RD14BY2H621J	RES. CARBON	620	5%	1/2W
R023	RD14BY2H621J	RES. CARBON	620	5%	1/2W
R024	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R025	RD14BB2E751J	RES. CARBON	750	5%	1/4W
R026	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R027	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R028	RS14GB3D101J	RES. METAL FILM	100	5%	2W
R029	RS14GB3D101J	RES. METAL FILM	100	5%	2W
R030	RD14BB2E5R1J	RES. CARBON	5.1	5%	1/4W
R031	RD14BB2E680J	RES. CARBON	68	5%	1/4W
R032	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R033	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R034	RD14BB2E100J	RES. CARBON	10	5%	1/4W
R035	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R036	RD14BB2E470J	RES. CARBON	47	5%	1/4W
R037	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R038	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R039	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R040	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R041	RS14AB3Y361J	RES. METAL FILM	360	5%	7W
R042	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R043	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R044	RS14AB3Y361J	RES. METAL FILM	360	5%	7W
R045	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R046	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R047	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R048	NO USE				
R049	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R050	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R051	RD14BB2E221J	RES. CARBON	220	5%	1/4W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
TC001	C05-0422-05	CAP. TRIMMER 20P
TC002	C05-0422-05	CAP. TRIMMER 20P
TH001	SDT-100	THERMISTOR
TH002	SDT-20	THERMISTOR
TH003	SDT-100	THERMISTOR
TP001	E23-0046-04	TERMINAL
TP002	E23-0046-04	TERMINAL
TP003	E23-0046-04	TERMINAL
TP004	E23-0046-04	TERMINAL
U001	NJM4558D	IC, DUAL OP-AMP
VR001	R12-0539-05	RES. SEMI FIXED 200 B
VR002	R12-1517-05	RES. SEMI FIXED 1K B
VR003	R12-0539-05	RES. SEMI FIXED 200 B

TRIG UNIT

(X74-1370-01)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E23-0527-04	EARTH PLATE			
	E31-2170-05	JUMPING WIRE			
	E31-2390-05	LEAD WIRE WITH CONNECTOR			
	E33-4040-00	WIRE ASS'Y			
	F01-0813-05	HEAT SINK			
	F01-0820-04	HEAT SINK			
	F15-0727-04	HOLDER (NEON TUBE)			
	F20-0622-05	INSULATOR			
	J25-5016-22	PCB (UNMOUNTED)			
	N19-0191-05	WASHER NONMETAL			
	N30-3006-46	SCREW, PAN HD M 3X6			
	N30-3008-46	SCREW, PAN HD M 3X8			
C001	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C002	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C003	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C004	CQ93M1H103K	CAP. MYLAR	0.01	10%	50V
C005	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C006	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C007	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C008	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C009	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C010	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C011	CE04W1E100M	CAP. ELECTRO	10	20%	25V
C012	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C013	CK45B1H222K	CAP. CERAMIC	2200P	10%	50V
C014	CC45SL1H331J	CAP. CERAMIC	330P	5%	50V
C015	CC45FCH1H270J	CAP. CERAMIC	27P	5%	50V
C016	NO USE				
C017	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C018	NO USE				
C019	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C020	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C021	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C022	CC45FCH1H150J	CAP. CERAMIC	15P	5%	50V
C023	NO USE				
C024	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C025	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C026	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V
C027	CC45CH1H221J	CAP. CERAMIC	220P	5%	50V
C028	NO USE				
C029	CC45FCH1H120J	CAP. CERAMIC	12P	5%	50V
C030	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C031	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C032	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C033	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C034	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C035	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C036	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C037	CC45CH1H181J	CAP. CERAMIC	180P	5%	50V
C038	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C039	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C040	NO USE				
C041	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C042	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C043	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C044	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C045	CC45CH2H010C	CAP. CERAMIC	1P	0.25P	500V
C046	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C047	CE04HW1H010M	CAP. ELECTRO	1	20%	50V
C048	CK45E3D102P	CAP. CERAMIC	1000P		2K
C049	C91-0571-05	CAP. CERAMIC	0.01		2KV
C050	C91-0571-05	CAP. CERAMIC	0.01		2KV
C051	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C052	CQ93M1H154K	CAP. MYLAR	0.15	10%	50V
C053	CQ93M1H154K	CAP. MYLAR	0.15	10%	50V
C054	CK45B1H472K	CAP. CERAMIC	4700P	10%	50V
C055	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C056	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C057	NO USE				
C058	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C059	CE04W2E010	CAP. ELECTRO	1		250V
C060	C91-0571-05	CAP. CERAMIC	0.01		2KV
C061	C91-0571-05	CAP. CERAMIC	0.01		2KV
C062	C91-0571-05	CAP. CERAMIC	0.01		2KV
C063	C91-0571-05	CAP. CERAMIC	0.01		2KV
C064	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C065	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C066	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C067	CE04W1V221M	CAP. ELECTRO	220	20%	35V
C068	CE04W2C3R3	CAP. ELECTRO	3.3		160V
C069	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C070	CE04W2C100	CAP. ELECTRO	10		160V
C071	CK45B2H472K	CAP. CERAMIC	4700P	10%	500V
C072	CE04W1E331M	CAP. ELECTRO	330	20%	25V
C073	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C074	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C075	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C076	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C077	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C078	CE04W1E331M	CAP. ELECTRO	330	20%	25V
C079	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C080	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C081	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C082	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C083	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C084	CE04W1A471M	CAP. ELECTRO	470	20%	10V
C085	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C086	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C087	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C088	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C089	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C090	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C091	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C092	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C093	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C094	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C095	CE04W1A471M	CAP. ELECTRO	470	20%	10V
C096	CE04FW1A101M	CAP. ELECTRO	100	20%	10V
C097	C91-0571-05	CAP. CERAMIC	0.01		2KV
C098	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C099	NO USE				
C100	CK45B2H102K	CAP. CERAMIC	1000P	10%	500V
C101	CK45B2H102K	CAP. CERAMIC	1000P	10%	500V
C102	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C103	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C104	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C105	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C106	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C107	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C108	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C109	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C110	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C111	CE04W1E101M	CAP. ELECTRO	100	20%	25V
C112	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C113	CC45CH1H680J	CAP. CERAMIC	68P	5%	50V
C114	NO USE				
C115	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C116	CC45CH1H470J	CAP. CERAMIC	47P	5%	50V
C117	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C118	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C119	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C120	C91-0571-05	CAP. CERAMIC	0.01		2KV
C121	NO USE				
C122	CC45CH1H070D	CAP. CERAMIC	7P	0.5P	50V
D001	DS442X	DIODE, SILICON SWITCHING			
D002	DS442X	DIODE, SILICON SWITCHING			
D003	DS442X	DIODE, SILICON SWITCHING			
D004	DS442X	DIODE, SILICON SWITCHING			
D005	DS442X	DIODE, SILICON SWITCHING			
D006	DS442X	DIODE, SILICON SWITCHING			
D007	DS442X	DIODE, SILICON SWITCHING			
D008	DS442X	DIODE, SILICON SWITCHING			
D011	1N60	DIODE GERMA			
D012	1N60	DIODE GERMA			
D013	1N60	DIODE GERMA			
D014	DS442X	DIODE, SILICON SWITCHING			
D015	DS442X	DIODE, SILICON SWITCHING			
D016	MTZ16JA	DIODE, ZENER 15V			
D017	DS442X	DIODE, SILICON SWITCHING			
D018	DS442X	DIODE, SILICON SWITCHING			
D019	DS442X	DIODE, SILICON SWITCHING			
D020	DS442X	DIODE, SILICON SWITCHING			
D021	DS442X	DIODE, SILICON SWITCHING			
D024	1SS83	DIODE SILICON SWITCHING			
D025	1SS83	DIODE SILICON SWITCHING			
D026	1SS83	DIODE SILICON SWITCHING			
D027	DS442X	DIODE, SILICON SWITCHING			
D028	DS442X	DIODE, SILICON SWITCHING			
D029	DS442X	DIODE, SILICON SWITCHING			
D030	1SS83	DIODE SILICON SWITCHING			
D031	1SS83	DIODE SILICON SWITCHING			
D032	W06C	DIODE SILICON RECTIFIER			
D033	W06C	DIODE SILICON RECTIFIER			
D034	1SS83	DIODE SILICON SWITCHING			

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
D035	W06C	DIODE SILICON RECTIFIER
D036	W06C	DIODE SILICON RECTIFIER
D037	DS442X	DIODE, SILICON SWITCHING
D038	DS442X	DIODE, SILICON SWITCHING
D041	1SS83	DIODE SILICON SWITCHING
D042	DS442X	DIODE, SILICON SWITCHING
D043	DS442X	DIODE, SILICON SWITCHING
D044	GMA-01	DIODE
L005	L40-1011-04	FERRI INDUCTOR 100UH
L006	L40-1011-04	FERRI INDUCTOR 100UH
L007	L40-1011-13	FERRI INDUCTOR 100UH
L008	L40-1011-13	FERRI INDUCTOR 100UH
L009	L40-1011-04	FERRI INDUCTOR 100UH
L010	L40-1011-04	FERRI INDUCTOR 100UH
L011	L40-1011-13	FERRI INDUCTOR 100UH
L012	L40-1011-13	FERRI INDUCTOR 100UH
L013	L40-1011-04	FERRI INDUCTOR 100UH
L014	L40-1011-04	FERRI INDUCTOR 100UH
L015	L40-1011-13	FERRI INDUCTOR 100UH
L016	L40-1011-13	FERRI INDUCTOR 100UH
L017	L40-1011-04	FERRI INDUCTOR 100UH
L018	L40-1011-04	FERRI INDUCTOR 100UH
L019	L40-1011-04	FERRI INDUCTOR 100UH
L020	L40-1011-04	FERRI INDUCTOR 100UH
L021	L40-4701-03	FERRI INDUCTOR 47UH
L022	L40-6801-03	FERRI INDUCTOR 68UH
NL001	NE-2B	NEON LAMP
NL002	NE-2B	NEON LAMP
NL003	NE-2B	NEON LAMP
NL004	NE-2B	NEON LAMP
P002	E40-0673-05	PIN CONNECTOR 6 CONTACT
P009	E40-0273-05	PIN CONNECTOR 2 CONTACT
P010	E40-0916-05	PIN CONNECTOR 9P
P011	E40-1016-05	PIN CONNECTOR 10P
P012	E40-1016-05	PIN CONNECTOR 10P
P013	E40-0873-05	PIN CONNECTOR 8 CONTACT
P014	E40-0273-05	PIN CONNECTOR 2 CONTACT
P015	E40-0373-05	PIN CONNECTOR 3 CONTACT
P016	E40-0373-05	PIN CONNECTOR 3 CONTACT
P017	E40-0373-05	PIN CONNECTOR 3 CONTACT
P018	E40-0704-05	PIN CONNECTOR 7P
P019	E40-0335-05	PIN CONNECTOR 3P
P020	E40-0335-05	PIN CONNECTOR 3P
P021	E40-0373-05	PIN CONNECTOR 3 CONTACT
P022	NO USE	
P023	E40-0273-05	PIN CONNECTOR 2 CONTACT
P048	E23-0046-04	TERMINAL
P049	E23-0046-04	TERMINAL
P057	E40-0273-05	PIN CONNECTOR 2 CONTACT
P058	E40-0273-05	PIN CONNECTOR 2 CONTACT
P059	E40-0273-05	PIN CONNECTOR 2 CONTACT
P060	E40-0273-05	PIN CONNECTOR 2 CONTACT
P061	E40-0273-05	PIN CONNECTOR 2 CONTACT
Q001	2SC2785(F)	TR. SI, NPN
Q002	2SA1005(K)	TR. SI, PNP
Q003	2SC2786(K)	TR. SI, NPN
Q004	2SK117(Y)	FET. N-CHANNEL
Q005	2SK117(Y)	FET. N-CHANNEL
Q006	2SC2786(K)	TR. SI, NPN
Q007	2SC2786(K)	TR. SI, NPN
Q008	NO USE	
Q009	2SA1005(K)	TR. SI, PNP
Q010	2SC2785(F)	TR. SI, NPN
Q011	2SC2785(F)	TR. SI, NPN
Q012	2SA1175(F)	TR. SI, PNP
Q013	2SC2785(F)	TR. SI, NPN
Q014	2SC2785(F)	TR. SI, NPN
Q015	2SA1175(F)	TR. SI, PNP
Q016	2SC1215(T,S)	TR. SI, NPN
Q017	2SC1215(T,S)	TR. SI, NPN
Q018	2SA1005(K)	TR. SI, PNP
Q019	2SA1005(K)	TR. SI, PNP
Q020	2SA1175(F)	TR. SI, PNP
Q021	2SA1175(F)	TR. SI, PNP
Q022	2SC2785(F)	TR. SI, NPN
Q023	2SC2785(F)	TR. SI, NPN
Q024	2SC2785(F)	TR. SI, NPN
Q025	2SC2785(F)	TR. SI, NPN
Q026	2SA1175(F)	TR. SI, PNP
Q027	2SA1175(F)	TR. SI, PNP
Q028	2SC2785(F)	TR. SI, NPN
Q029	2SA1175(F)	TR. SI, PNP
Q030	2SA1175(F)	TR. SI, PNP
Q031	2SC2785(F)	TR. SI, NPN
Q032	2SC2785(F)	TR. SI, NPN
Q033	2SA1175(F)	TR. SI, PNP
Q034	2SA1175(F)	TR. SI, PNP
Q035	2SC2785(F)	TR. SI, NPN
Q036	2SC2912(S)	TR. SI, NPN
Q037	2SA1210(S)	TR. SI, PNP
Q038	2SC2785(F)	TR. SI, NPN
Q039	2SC2912(S)	TR. SI, NPN
Q040	2SA1210(S)	TR. SI, PNP
Q041	2SA1005(K)	TR. SI, PNP
Q042	2SA1005(K)	TR. SI, PNP
Q043	2SK336	FET, N-CHANNEL
Q044	2SK336	FET, N-CHANNEL
Q045	2SC2785(F)	TR. SI, NPN
Q046	2SC2912(S)	TR. SI, NPN
Q047	2SA1210(S)	TR. SI, PNP
Q048	2SC2785(F)	TR. SI, NPN
Q049	2SC2912(S)	TR. SI, NPN
Q050	2SA1210(S)	TR. SI, PNP
Q051	2SA1175(F)	TR. SI, PNP
Q052	2SD613(E)	TR. SI, NPN
Q053	2SC2271(D)	TR. SI, NPN
Q054	2SA1175(F)	TR. SI, PNP
Q055	2SD1262A(Q)	TR, SI, NPN
Q056	2SB939A(Q)	TR. SI, PNP
Q057	2SC2785(F)	TR. SI, NPN
Q058	2SC2785(F)	TR. SI, NPN
Q059	2SA1175(F)	TR. SI, PNP
Q060	2SC2785(F)	TR. SI, NPN
R001	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R002	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R003	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R004	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R005	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R006	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R007	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R008	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R009	RN14BK2E4700F	RES. METAL FILM 470 1% 1/4W
R010	RN14BK2E4701F	RES. METAL FILM 4.7K 1% 1/4W
R011	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R012	RN14BK2E5601F	RES. METAL FILM 5.6K 1% 1/4W
R013	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R014	RN14BK2E3900F	RES. METAL FILM 390 1% 1/4W
R015	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R016	RD14BB2E104J	RES. CARBON 100K 5% 1/4W
R017	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
R018	RD14BB2E330J	RES. CARBON 33 5% 1/4W
R019	RD14BB2E330J	RES. CARBON 33 5% 1/4W
R020	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R021	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R022	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R023	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R024	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R025	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R026	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R027	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R028	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R029	RD14BB2E682J	RES. CARBON 6.8K 5% 1/4W
R030	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R031	NO USE	
R032	RD14BB2E105J	RES. CARBON 1M 5% 1/4W
R033	RD14BB2E105J	RES. CARBON 1M 5% 1/4W
R034	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R035	RD14BB2E100J	RES. CARBON 10 5% 1/4W
R036	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R037	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R038	RD14BB2E393J	RES. CARBON 39K 5% 1/4W
R039	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R040	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R041	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R042	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R043	RD14BB2E393J	RES. CARBON 39K 5% 1/4W
R044	RD14BB2E393J	RES. CARBON 39K 5% 1/4W
R045	RD14BB2C393J	RES. CARBON 39K 5% 1/6W
R046	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R047	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R048	RD14BB2E473J	RES. CARBON 47K 5% 1/4W
R049	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R050	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R051	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R052	RD14BB2C393J	RES. CARBON 39K 5% 1/6W
R053	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R054	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R055	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R056	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R057	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R058	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R059	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R060	NO USE	
R061	RD14BB2E104J	RES. CARBON 100K 5% 1/4W
R062	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R063	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R064	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R065	RD14BB2E220J	RES. CARBON 22 5% 1/4W
R066	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R067	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R068	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R069	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R070	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R071	RD14BB2E102J	RES. CARBON 1K 5% 1/4W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R072	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R073	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R074	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R075	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R076	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R077	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R078	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R079	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R080	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R081	RD14BB2C820J	RES. CARBON	82	5%	1/6W
R082	RD14BB2E301J	RES, CARBON	300	5%	1/4W
R083	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R084	RD14BB2C820J	RES. CARBON	82	5%	1/6W
R085	RD14BB2E301J	RES, CARBON	300	5%	1/4W
R086	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R087	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R088	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R089	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R090	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R091	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R092	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R093	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R094	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R095	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R096	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R097	RD14BB2C821J	RES. CARBON	820	5%	1/6W
R098	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R099	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R100	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R101	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R102	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R103	RD14BB2E181J	RES. CARBON	180	5%	1/4W
R104	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R105	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W
R106	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R107	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R108	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R109	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R110	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R111	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W
R112	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R113	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R114	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R115	RD14BB2E682J	RES. CARBON	6.8K	5%	1/4W
R116	RD14BB2E153J	RES. CARBON	15K	5%	1/4W
R117	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R118	RD14BB2E122J	RES. CARBON	1.2K	5%	1/4W
R119	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R120	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R121	RD14BB2E683J	RES. CARBON	68K	5%	1/4W
R122	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R123	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R124	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R125	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R126	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R127	RD14BB2E683J	RES. CARBON	68K	5%	1/4W
R128	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R129	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R130	NO USE				
R131	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R132	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R133	RN14BK2E2201F	RES. METAL FILM	2.2K	1%	1/4W
R134	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R135	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R136	RD14BB2E182J	RES. CARBON	1.8K	5%	1/4W
R137	RD14BB2E391J	RES. CARBON	390	5%	1/4W
R138	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R139	RN14BK2E4701F	RES. METAL FILM	4.7K	1%	1/4W
R140	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R141	RD14BB2E221J	RES. CARBON	220	5%	1/4W
R142	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R143	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R144	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R145	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R146	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R147	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R148	RN14BK2E6802F	RES. METAL FILM	68K	1%	1/4W
R149	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R150	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R151	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R152	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R153	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R154	RN14BK2E5601F	RES. METAL FILM	5.6K	1%	1/4W
R155	RN14BK2H1302F	RES. METAL FILM	13K	1%	1/2W
R156	RN14BK2E2401F	RES. METAL FILM	2.4K	1%	1/4W
R157	RN14BK2E82R0F	RES. METAL FILM	82.0	1%	1/4W
R158	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R159	RD14BY2H912J	RES. CARBON	9.1K	5%	1/2W
R160	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R161	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R162	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R163	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R164	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R165	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R166	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R167	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R168	RD14BB2E103J	RES. CARBON	10K	5%	1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION			
R169	RD14BB2E433J	RES. CARBON	43K	5%	1/4W
R170	RD14BB2E823J	RES. CARBON	82K	5%	1/4W
R171	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R172	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R175	R92-1026-05	RES. METAL FILM	3.3M		
R176	R92-1047-05	RES. METAL FIXED	15M	1%	1W
R177	RN14BK2E1543F	RES. METAL FILM	154K	1%	1/4W
R178	RD14BB2E154J	RES. CARBON	150K	5%	1/4W
R179	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R180	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R181	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R182	R92-1058-05	RES. METAL FILM	15M	5%	1W
R183	R92-1057-05	RES. METAL FILM	2.2M	5%	1/2W
R184	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R185	RD14BB2E334J	RES. CARBON	330K	5%	1/4W
R186	R92-1034-05	RES. METAL FILM	47M		
R187	R92-1034-05	RES. METAL FILM	47M		
R188	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R189	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R190	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R191	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R192	RN14BK2E4300F	RES. METAL FILM	430	1%	1/4W
R193	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R194	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R195	RD14BB2E912J	RES. CARBON	9.1K	5%	1/4W
R196	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R197	RD14BB2E330J	RES. CARBON	33	5%	1/4W
R198	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R199	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R200	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R201	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R202	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R203	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R204	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R205	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R206	RD14BB2E151J	RES. CARBON	150	5%	1/4W
R207	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R208	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R209	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R210	RD14BB2C220J	RES. CARBON	22	5%	1/6W
R211	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R212	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R213	RD14BB2C563J	RES. CARBON	56K	5%	1/6W
R214	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R215	RD14BB2C471J	RES. CARBON	470	5%	1/6W
R216	RD14BB2C621J	RES. CARBON	620	5%	1/6W
R217	RD14BB2E101J	RES. CARBON	100	5%	1/4W
S001	S33-2501-05	LEVER SWITCH			
S002	S32-4008-05	LEVER SWITCH			
S003	S32-2012-05	LEVER SWITCH			
TC001	C05-0434-05	CAP. TRIMMER	20P		
TC002	C05-0432-05	CAP. TRIMMER	6P		
U001	SN74LS08N	IC, QUAD 2-INPUT AND GATE			
U002	SN74LS00N	IC, QUAD 2-INPUT NAND GATE			
U003	SN74LS112N	IC, DUAL J-K FLIP-FLOP			
U004	SN74LS112N	IC, DUAL J-K FLIP-FLOP			
U005	SN74LS08N	IC, QUAD 2-INPUT AND GATE			
U006	SN74LS08N	IC, QUAD 2-INPUT AND GATE			
U007	SN74LS32N	IC, QUAD 2-INPUT OR GATE			
U008	SN74LS00N	IC, QUAD 2-INPUT NAND GATE			
U009	TL082CP	IC OP AMP.			
U010	NJM4558D	IC, DUAL OP-AMP			
U011	MC10107L	IC, QUAD 2-INPUT EXC OR/NOR			
U012	MC10104L	IC, QUAD 2-INPUT AND GATE			
VR001	R12-0541-05	RES. SEMI FIXED	100 B		
VR002	R12-4508-05	RES. SEMI FIXED	50KB		
VR003	R12-0541-05	RES. SEMI FIXED	100 B		
VR004	R12-1519-05	RES. SEMI FIXED	1K B		
VR005	R12-5517-05	RES. SEMI FIXED	100KB		
VR006	R12-5517-05	RES. SEMI FIXED	100KB		
VR007	R10-3502-05	V.R.	10KB X2		
VR008	R10-9503-05	V.R. WITH SW	2KBX10KB		
VR009	R06-1502-05	V.R.	2K B		

SWEEP UNIT

(X74-1380-01)

REF.NO	PARTS NO	NAME & DESCRIPTION
	E04-0251-05	BNC RECEPTACLE
	E23-0046-04	TERMINAL
	E23-0527-04	EARTH PLATE
	E31-2170-05	JUMPING WIRE
	E31-2386-05	LEAD WIRE WITH CONNECTOR
	E33-4041-00	WIRE ASS'Y
	F10-1571-04	SHIELD PLATE
	J19-1636-14	BNC HOLDER
	J25-5018-22	PCB (UNMOUNTED)
	N15-1090-46	WASHER

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
	N30-3006-46	SCREW, PAN HD M 3X6
C001	CQ93M1H473K	CAP. MYLAR 0.047 10% 50V
C002	CM93BD2A470J	CAP. MICA 47P 5% 100V
C003	CQ92FM1H103K	CAP. MYLAR 0.01 10% 50V
C004	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C005	CE04BW1E220M	CAP. ELECTRO 22 20% 25V
C006	NO USE	
C007	CC45CH1H470J	CAP. CERAMIC 47P 5% 50V
C008	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C009	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C010	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C011	NO USE	
C012	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C013	CK45B1H102K	CAP. CERAMIC 1000P 10% 50V
C014	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C015	CE04FW1H010M	CAP. ELECTRO 1 20% 50V
C016	CE04W1A101M	CAP. ELECTRO 100 20% 10V
C017	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C018	NO USE	
C019	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C020	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C021	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C022	NO USE	
C023	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C024	C91-0574-05	CAP. MYLAR 1 5%
C025	C91-0573-05	CAP. MYLAR 0.01 1%
C026	CQ92FM1H102K	CAP. MYLAR 1000P 10% 50V
C027	CM93BD2A101J	CAP. MICA 100P 5% 100V
C028	NO USE	
C029	C91-0574-05	CAP. MYLAR 1 5%
C030	C91-0573-05	CAP. MYLAR 0.01 1%
C031	CQ92FM1H102K	CAP. MYLAR 1000P 10% 50V
C032	CM93BD2A101J	CAP. MICA 100P 5% 100V
C033	NO USE	
C034	CC45FCH1H100D	CAP. CERAMIC 10P 0.5P 50V
C035	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C036	NO USE	
C037	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C038	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C039	CQ93M1H682J	CAP. MYLAR 6800P 5% 50V
C040	CQ93M1H223K	CAP. MYLAR 0.022 10% 50V
C041	CE04W1E4R7M	CAP. ELECTRO 4.7 20% 25V
C042	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C043	C90-0915-05	CAP. ELECTRO 6800 20% 35V
C044	C90-0915-05	CAP. ELECTRO 6800 20% 35V
C045	C90-0916-05	CAP. ELECTRO 4700 20% 16V
C046	C90-0910-05	CAP. ELECTRO 100 20% 200V
C047	CE04W2A221M	CAP. ELECTRO 220 20% 100V
C048	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C049	CE04FW1A101M	CAP. ELECTRO 100 20% 10V
C050	CE04W1A470M	CAP. ELECTRO 47 20% 10V
C051	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C052	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C053	CE04FW1A101M	CAP. ELECTRO 100 20% 10V
C054	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C055	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C056	CE04W1E101M	CAP. ELECTRO 100 20% 25V
C057	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C058	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C059	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C060	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C061	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C062	CK45B2H472K	CAP. CERAMIC 4700P 10% 500V
C063	CE04W1J100M	CAP. ELECTRO 10 20% 63V
C064	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C065	CK45B2H472K	CAP. CERAMIC 4700P 10% 500V
C066	NO USE	
C067	CK45B2H472K	CAP. CERAMIC 4700P 10% 500V
C068	CE04W2C100	CAP. ELECTRO 10 160V
C069	CE04W1A470M	CAP. ELECTRO 47 20% 10V
C070	CE04W1E331M	CAP. ELECTRO 330 20% 25V
C071	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C072	CE04W1E101M	CAP. ELECTRO 100 20% 25V
C073	CE04W1E331M	CAP. ELECTRO 330 20% 25V
C074	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C075	CE04W1E101M	CAP. ELECTRO 100 20% 25V
C076	CE04W2E4R7	CAP. ELECTRO 4.7 250V
C077	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C078	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C079	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C080	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C081	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C082	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C083	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C084	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C085	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C086	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C087	NO USE	
C088	CK45B2H472K	CAP. CERAMIC 4700P 10% 500V
C089	CK45B2H472K	CAP. CERAMIC 4700P 10% 500V
C090	CK45F1H103Z	CAP. CERAMIC 0.01 50V
C091	CC45SL1H391J	CAP. CERAMIC 390P 5% 50V
C092	CC45SL1H391J	CAP. CERAMIC 390P 5% 50V
C095	CE04FW1E470M	CAP. ELECTRO 47 20% 25V
C096	CK45B1H102K	CAP. CERAMIC 1000P 10% 50V

REF.NO	PARTS NO	NAME & DESCRIPTION
C103	CE04W1A470M	CAP. ELECTRO 47 20% 10V
C104	CE04W1A470M	CAP. ELECTRO 47 20% 10V
C105	CK45B1H222K	CAP. CERAMIC 2200P 10% 50V
C106	CC45CH1H030C	CAP. CERAMIC 3P 0.25P 50V
C107	NO USE	
C108	CC45CH1H040C	CAP. CERAMIC 4P 0.25P 50V
C109	NO USE	
C110	CE04W1E470M	CAP. ELECTRO 47 20% 25V
C111	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C112	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
D001	1S1544A	DIODE
D002	DS442X	DIODE, SILICON SWITCHING
D003	DS442X	DIODE, SILICON SWITCHING
D004	DS442X	DIODE, SILICON SWITCHING
D005	NO USE	
D006	DS442X	DIODE, SILICON SWITCHING
D007	DS442X	DIODE, SILICON SWITCHING
D008	NO USE	
D009	DS442X	DIODE, SILICON SWITCHING
D010	DS442X	DIODE, SILICON SWITCHING
D011	DS442X	DIODE, SILICON SWITCHING
D012	DS422X	DIODE, SILICON SWITCHING
D013	NO USE	
D014	S4VB40F1	DIODE, BRIDGE
D015	S2VB40F	DIODE, BRIDGE
D016	S2VB40F	DIODE, BRIDGE
D017	S1VB60	DIODE
D018	DS442X	DIODE, SILICON SWITCHING
D019	WZ-085	DIODE, ZENER 8.5V
D020	WZ-150	DIODE, ZENER 15V
D021	WZ-050	DIODE, ZENER 5V
D022	WZ-085	DIODE, ZENER 8.5V
D023	WZ-150	DIODE, ZENER 15V
D024	DS442X	DIODE, SILICON SWITCHING
D025	DS442X	DIODE, SILICON SWITCHING
D029	DS422X	DIODE, SILICON SWITCHING
D030	GMA-01	DIODE
D031	DS442X	DIODE, SILICON SWITCHING
D032	DS422X	DIODE, SILICON SWITCHING
D033	DS422X	DIODE, SILICON SWITCHING
L001	L40-4701-03	FERRI INDUCTOR 47UH
L002	L40-4701-03	FERRI INDUCTOR 47UH
L003	L40-4701-03	FERRI INDUCTOR 47UH
L004	NO USE	
L005	L40-1011-04	FERRI INDUCTOR 100UH
L006	L40-1011-04	FERRI INDUCTOR 100UH
L007	L40-1011-13	FERRI INDUCTOR 100UH
L008	L40-1011-04	FERRI INDUCTOR 100UH
L009	L40-1011-04	FERRI INDUCTOR 100UH
L010	L40-1011-13	FERRI INDUCTOR 100UH
L011	L40-1011-13	FERRI INDUCTOR 100UH
L012	L40-4701-03	FERRI INDUCTOR 47UH
P005	E40-0273-05	PIN CONNECTOR 2 CONTACT
P013	E40-1173-05	PIN CONNECTOR
P014	NO USE	
P015	E40-0373-05	PIN CONNECTOR 3 CONTACT
P022	E40-0673-05	PIN CONNECTOR 6 CONTACT
P023	E40-0473-05	PIN CONNECTOR 4 CONTACT
P024	E40-1073-05	PIN CONNECTOR 10P
P039	E40-0373-05	PIN CONNECTOR 3 CONTACT
P040	E40-0446-05	CONNECTOR 4P
P041	E40-0746-05	PIN CONNECTOR 7P
P042	E40-0773-05	PIN CONNECTOR 7P
P043	E40-0773-05	PIN CONNECTOR 7P
P044	E40-0373-05	PIN CONNECTOR 3 CONTACT
P045	E40-0473-05	PIN CONNECTOR 4 CONTACT
P046	E40-0273-05	PIN CONNECTOR 2 CONTACT
P047	E40-0273-05	PIN CONNECTOR 2 CONTACT
P058	E40-0273-05	PIN CONNECTOR 2 CONTACT
P059	NO USE	
P060	E40-0473-05	PIN CONNECTOR 4 CONTACT
Q001	2SK107(3)	FET, N-CHANNEL
Q002	2SK107(3)	FET, N-CHANNEL
Q003	2SC1215(T,S)	TR. SI, NPN
Q004	2SC1215(T,S)	TR. SI, NPN
Q005	2SC1215(T,S)	TR. SI, NPN
Q006	2SA1175(F)	TR. SI, PNP
Q007	2SK117(Y)	FET. N-CHANNEL
Q008	2SC2785(F)	TR. SI, NPN
Q009	2SC2785(F)	TR. SI, NPN
Q010	2SC2785(F)	TR. SI, NPN
Q011	2SA1175(F)	TR. SI, PNP
Q012	2SK117(Y)	FET. N-CHANNEL
Q013	2SC2785(F)	TR. SI, NPN
Q014	2SC2785(F)	TR. SI, NPN
Q015	2SC2785(F)	TR. SI, NPN
Q016	2SA1175(F)	TR. SI, PNP

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
Q017	2SC2785(F)	TR. SI, NPN
Q018	2SC2785(F)	TR. SI, NPN
Q019	2SC2785(F)	TR. SI, NPN
Q020	2SA1239(F)	TR. SI, PNP-DUAL
Q021	NO USE	
Q022	2SA1175(F)	TR. SI, PNP
Q023	2SC2785(F)	TR. SI, NPN
Q024	2SC2785(F)	TR. SI, NPN
Q025	2SC2785(F)	TR. SI, NPN
Q026	2SC2785(F)	TR. SI, NPN
Q027	2SA1175(F)	TR. SI, PNP
Q028	2SA1175(F)	TR. SI, PNP
Q029	2SA1175(F)	TR. SI, PNP
Q030	2SC2785(F)	TR. SI, NPN
Q031	2SC2271(D)	TR. SI, NPN
Q032	2SC2271(D)	TR. SI, NPN
Q033	2SA1175(F)	TR. SI, PNP
Q034	2SK117(O)	FET, N-CHANNEL
Q035	2SC2785(F)	TR. SI, NPN
Q036	2SA1175(F)	TR. SI, PNP
Q037	2SK117(GR)	FET. N-CHANNEL
Q038	2SK117(GR)	FET. N-CHANNEL
Q039	NO USE	
Q040	2SC2785(F)	TR. SI, NPN
Q040	2SC2785(F)	TR. SI, NPN
Q041	2SA1175(F)	TR. SI, PNP
Q042	2SA1175(F)	TR. SI, PNP
Q043	2SA1175(F)	TR. SI, PNP
Q044	2SA1175(F)	TR. SI, PNP
R001	RD14BB2E105J	RES. CARBON 1M 5% 1/4W
R002	RN14BK2E9003F	RES. METAL FILM 900K 1% 1/4W
R003	RN14BK2E1113F	RES. METAL FILM 111K 1% 1/4W
R004	RD14BB2E430J	RES. CARBON 43 5% 1/4W
R005	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
R006	RD14BB2E104J	RES. CARBON 100K 5% 1/4W
R007	RD14BB2E181J	RES. CARBON 180 5% 1/4W
R008	RD14BB2C181J	RES. CARBON 180 5% 1/6W
R009	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R010	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R011	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R012	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R013	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R014	RN14BK2E4302F	RES. METAL FILM 43K 1% 1/4W
R015	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R016	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R017	RD14BB2E473J	RES. CARBON 47K 5% 1/4W
R018	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R019	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R020	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R021	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R022	RD14BB2E821J	RES. CARBON 820 5% 1/4W
R023	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R024	NO USE	
R025	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R026	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R027	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R028	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R029	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R030	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R031	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R032	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R033	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R034	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R035	RD14BB2E681J	RES. CARBON 680 5% 1/4W
R036	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R037	RD14BB2E392J	RES. CARBON 3.9K 5% 1/4W
R038	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R039	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R040	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R041	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R042	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R043	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R044	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R045	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R046	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R047	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R048	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R049	RD14BB2C820J	RES. CARBON 82 5% 1/6W
R050	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R051	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R052	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R053	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R054	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R055	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R056	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R057	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R058	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R059	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R060	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R061	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R062	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R063	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R064	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R065	RD14BB2E102J	RES. CARBON 1K 5% 1/4W

REF.NO	PARTS NO	NAME & DESCRIPTION
R066	RD14BB2E820J	RES. CARBON 82 5% 1/4W
R067	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R068	RD14BB2E331J	RES. CARBON 330 5% 1/4W
R069	RN14BK2E3602F	RES. METAL FILM 36K 1% 1/4W
R070	RN14BK2E3302F	RES. METAL FILM 33K 1% 1/4W
R071	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R072	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R073	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R074	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R075	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R076	RD14BB2C182J	RES. CARBON 1.8K 5% 1/6W
R077	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R078	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R079	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R080	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R081	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R082	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R083	RS14GB3D103J	RES. METAL FILM 10K 5% 2W
R084	RN14BK2H3004F	RES. METAL FILM 3M 1% 1/2W
R085	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
R086	RN14BK2E5003F	RES. METAL FILM 500K 1% 1/4W
R087	RN14BK2E3003F	RES. METAL FILM 300K 1% 1/4W
R088	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W
R089	RN14BK2E5002F	RES. METAL FILM 50K 1% 1/4W
R090	RN14BK2E3002F	RES. METAL FILM 30K 1% 1/4W
R091	RN14BK2E1002F	RES. METAL FILM 10K 1% 1/4W
R092	RN14BK2E5001F	RES. METAL FILM 5K 1% 1/4W
R093	RN14BK2E5001F	RES. METAL FILM 5K 1% 1/4W
R094	RD14BB2E113J	RES. CARBON 11K 5% 1/4W
R095	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R096	RS14GB3D103J	RES. METAL FILM 10K 5% 2W
R097	RN14BK2H3004F	RES. METAL FILM 3M 1% 1/2W
R098	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
R099	RN14BK2E5003F	RES. METAL FILM 500K 1% 1/4W
R100	RN14BK2E3003F	RES. METAL FILM 300K 1% 1/4W
R101	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W
R102	RN14BK2E5002F	RES. METAL FILM 50K 1% 1/4W
R103	RN14BK2E3002F	RES. METAL FILM 30K 1% 1/4W
R104	RN14BK2E1002F	RES. METAL FILM 10K 1% 1/4W
R105	RN14BK2E5001F	RES. METAL FILM 5K 1% 1/4W
R106	RN14BK2E5001F	RES. METAL FILM 5K 1% 1/4W
R107	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R108	RN14BK2E3602F	RES. METAL FILM 36K 1% 1/4W
R109	RN14BK2E3302F	RES. METAL FILM 33K 1% 1/4W
R110	RD14BB2E472J	RES. CARBON 4.7K 5% 1/4W
R111	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R112	RD14BB2E113J	RES. CARBON 11K 5% 1/4W
R113	RD14BB2E912J	RES. CARBON 9.1K 5% 1/4W
R114	RD14BB2E682J	RES. CARBON 6.8K 5% 1/4W
R115	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R116	RD14BB2E113J	RES. CARBON 11K 5% 1/4W
R117	RD14BB2E133J	RES. CARBON 13K 5% 1/4W
R118	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R119	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R120	RD14BB2E133J	RES. CARBON 13K 5% 1/4W
R121	RD14BB2E473J	RES. CARBON 47K 5% 1/4W
R122	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R123	RD14BB2E182J	RES. CARBON 1.8K 5% 1/4W
R124	RD14BB2E681J	RES. CARBON 680 5% 1/4W
R125	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R126	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R127	RD14BB2E622J	RES. CARBON 6.2K 5% 1/4W
R128	RD14BB2E622J	RES. CARBON 6.2K 5% 1/4W
R129	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R130	RD14BB2E104J	RES. CARBON 100K 5% 1/4W
R131	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R132	RD14BB2E133J	RES. CARBON 13K 5% 1/4W
R133	RD14BB2E133J	RES. CARBON 13K 5% 1/4W
R134	RD14BB2E113J	RES. CARBON 11K 5% 1/4W
R135	RD14BB2E133J	RES. CARBON 13K 5% 1/4W
R136	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R137	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R138	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R139	RD14BB2E471J	RES. CARBON 470 5% 1/4W
R140	RD14BB2E682J	RES. CARBON 6.8K 5% 1/4W
R141	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R142	RD14BB2E391J	RES. CARBON 390 5% 1/4W
R143	NO USE	
R144	RD14BB2E473J	RES. CARBON 47K 5% 1/4W
R145	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R146	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R147	RD14BB2E470J	RES. CARBON 47 5% 1/4W
R148	RD14BB2E221J	RES. CARBON 220 5% 1/4W
R149	RD14BB2E473J	RES. CARBON 47K 5% 1/4W
R150	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R151	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R152	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R153	RD14BB2C182J	RES. CARBON 1.8K 5% 1/6W
R154	RD14BB2C822J	RES. CARBON 8.2K 5% 1/6W
R155	RN14BK2E5001F	RES. METAL FILM 5K 1% 1/4W
R156	RN14BK2E1502F	RES.METAL FILM 15K 1% 1/4W
R157	RD14BB2E392J	RES. CARBON 3.9K 5% 1/4W
R158	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R159	RD14BB2C561J	RES. CARBON 560 5% 1/6W
R160	RN14BK2E1502F	RES.METAL FILM 15K 1% 1/4W
R161	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
R162	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R163	RD14BB2C561J	RES. CARBON	560	5%	1/6W
R164	RD14BB2E103J	RES. CARBON	10K	5%	1/4W
R165	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R166	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R167	RD14BB2C561J	RES. CARBON	560	5%	1/6W
R168	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R169	RN14BK2E5002F	RES. METAL FILM	50K	1%	1/4W
R170	RD14BB2E123J	RES. CARBON	12K	5%	1/4W
R171	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R172	RN14BK2E1203F	RES. METAL FILM	120K	1%	1/4W
R173	RN14BK2E1502F	RES.METAL FILM	15K	1%	1/4W
R174	RD14BB2E123J	RES. CARBON	12K	5%	1/4W
R175	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R176	RD14BY2H333J	RES. CARBON	33K	5%	1/2W
R177	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R178	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R179	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R180	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R181	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R182	RD14BB2E473J	RES. CARBON	47K	5%	1/4W
R183	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R184	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R185	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R186	RD14BB2E472J	RES. CARBON	4.7K	5%	1/4W
R187	RD14BY2H103J	RES. CARBON	10K	5%	1/2W
R188	RD14BB2E223J	RES. CARBON	22K	5%	1/4W
R189	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R190	RD14BB2E102J	RES. CARBON	1K	5%	1/4W
R191	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R192	RD14BB2C105J	RES. CARBON	1M	5%	1/6W
R193	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R194	RD14BB2E222J	RES. CARBON	2.2K	5%	1/4W
R195	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R196	RD14BB2C393J	RES. CARBON	39K	5%	1/6W
R197	RD14BB2C363J	RES. CARBON	36K	5%	1/6W
R202	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R203	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R204	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R205	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R206	NO USE				
R207	RD14BB2E681J	RES. CARBON	680	5%	1/4W
R217	RD14BB2E270J	RES. CARBON	27	5%	1/4W
R217	RD14BB2E270J	RES. CARBON	27	5%	1/4W
R218	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R219	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R219	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R220	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R221	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R221	RD14BB2C751J	RES. CARBON	750	5%	1/6W
R224	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R225	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R228	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R229	NO USE				
R230	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R231	NO USE				
R232	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R233	NO USE				
R234	RD14BB2E471J	RES. CARBON	470	5%	1/4W
R235	RD14BB2C333J	RES. CARBON	33K	5%	1/6W
S001	S32-4008-05	LEVER SWITCH			
S002	S33-4503-05	LEVER SWITCH			
S003	S32-4008-05	LEVER SWITCH			
S004	NO USE				
S005	S29-5501-05	ROTARY SWITCH			
TC001	C05-0422-05	CAP. TRIMMER	20P		
TC002	C05-0421-05	CAP. TRIMMER	10P		
TC003	C05-0420-05	CAP. TRIMMER	6P		
TC004	C05-0422-05	CAP. TRIMMER	20P		
TC005	C05-0422-05	CAP. TRIMMER	20P		
TC006	C05-0422-05	CAP. TRIMMER	20P		
U001	MC10131L	IC, DUAL D-FFS			
U002	MC10103L	IC, QUAD 2-INPUT OR GATE			
U003	MC10104L	IC, QUAD 2-INPUT AND GATE			
U004	MC10103L	IC, QUAD 2-INPUT OR GATE			
U005	MC10102L	IC, QUAD 2-INPUT NOR GATE			
U006	MC10102L	IC, QUAD 2-INPUT NOR GATE			
U007	MC10105L	IC	DIGITAL		
U008	NJM4558D	IC, DUAL OP-AMP			
U009	NJM4558D	IC, DUAL OP-AMP			
U010	NJM4558D	IC, DUAL OP-AMP			
U011	NJM4558D	IC, DUAL OP-AMP			
VR001	R12-2512-05	RES. SEMI FIXED 5K B			
VR002	R12-2512-05	RES. SEMI FIXED 5K B			
VR003	R12-0540-05	RES. SEMI FIXED 500 B			
VR004	R12-0540-05	RES. SEMI FIXED 500 B			
VR005	R12-2512-05	RES. SEMI FIXED 5K B			
VR006	R12-1518-05	RES. SEMI FIXED 2K B			
VR007	R12-1518-05	RES. SEMI FIXED 2K B			
VR008	R12-1518-05	RES. SEMI FIXED 2K B			
VR009	R12-1518-05	RES. SEMI FIXED 2K B			
VR010	R10-3502-05	V.R.	10KB X2		
VR011	R10-3502-05	V.R.	10KB X2		
VR012	R12-0540-05	RES. SEMI FIXED 500 B			
VR013	R12-3521-05	RES. SEMI FIXED 20K B			
VR014	R12-3520-05	RES. SEMI FIXED 10K B			

CRT UNIT

(X81-1250-03)

REF.NO	PARTS NO	NAME & DESCRIPTION			
	E01-0103-05	CRT SOCKET			
	E23-0503-05	TERMINAL			
	J25-2996-24	PCB (UNMOUNTED)			
	R92-0150-05	JUMPING RES.	ZERO OHM		
J016	E31-2390-05	LEAD WIRE WITH CONNECTOR			
J017	E31-2390-05	LEAD WIRE WITH CONNECTOR			
J018	NO USE				
J019	E31-2388-05	LEAD WIRE WITH CONNECTOR			
J020	NO USE				
J021	E31-2387-05	LEAD WIRE WITH CONNECTOR			
J022	NO USE				
J023	E31-2389-05	LEAD WIRE WITH CONNECTOR			
R003	RD14BB2E473J	RES. CARBON	47K	5%	1/4W

NOTE:

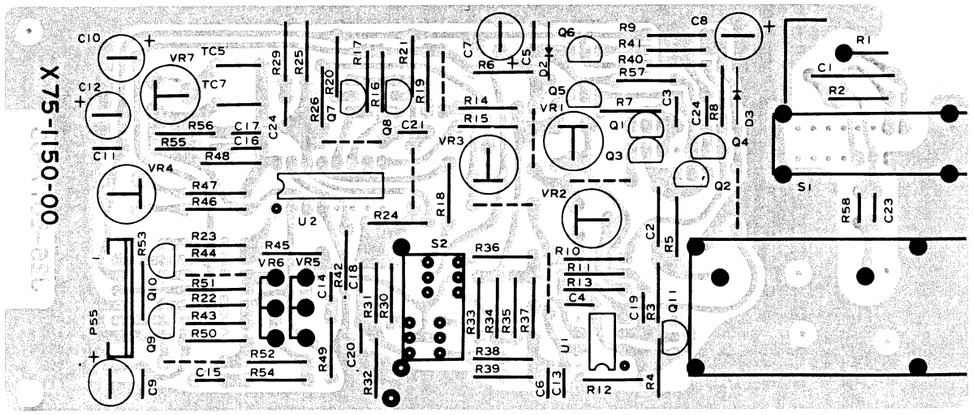
The following parts are added to PC Board (X73-1530-00, X73-1530-01).

R205 RD14BB2C122J REG. CARBON 1.2 kΩ ±5%

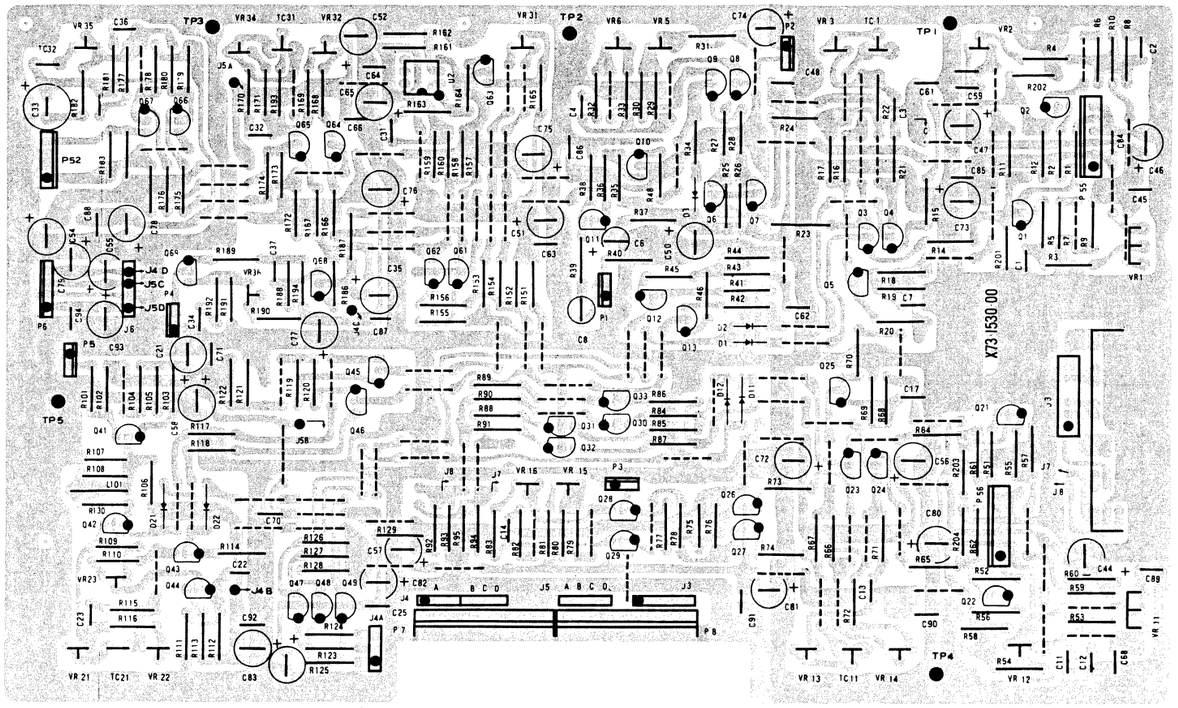
C95 CC45CH1H030C CAP. CERAMIC 3 pF ±0.25 pF 50 V

P.C. BOARD

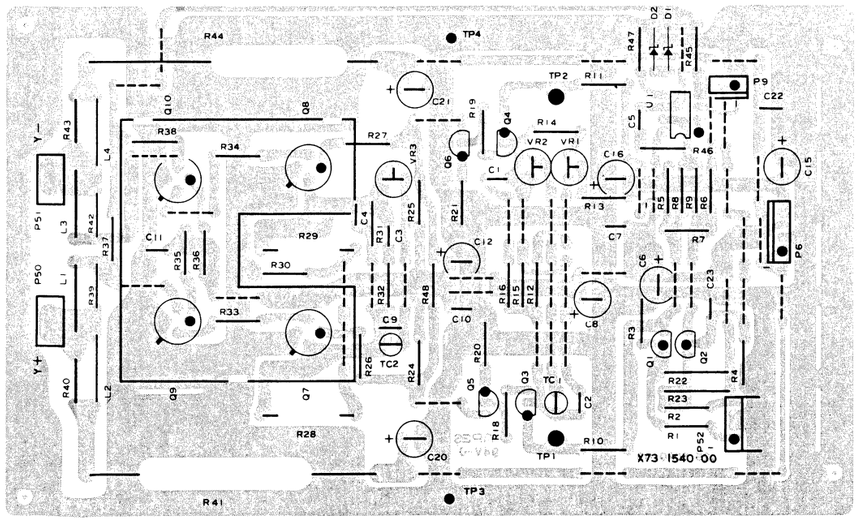
VERTICAL ATTENUATOR UNIT (X75-1150-00)
(Note: CH1, CH2 common)



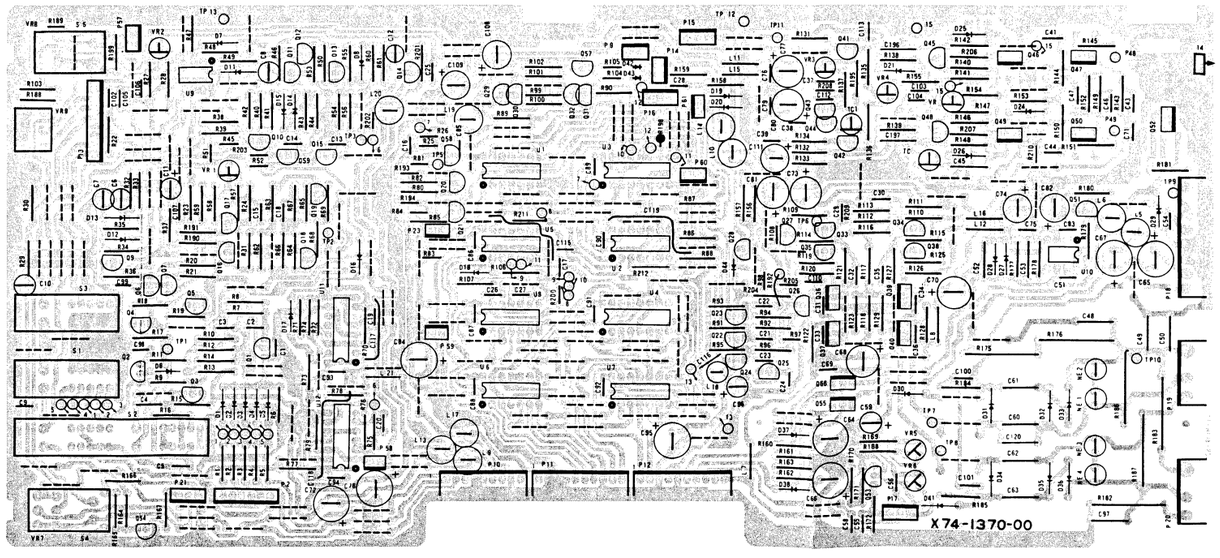
VERTICAL PREAMP UNIT (X73-1530-00), (X73-1530-01)



VERTICAL FINAL UNIT (X73-1540-00), (X73-1540-01)

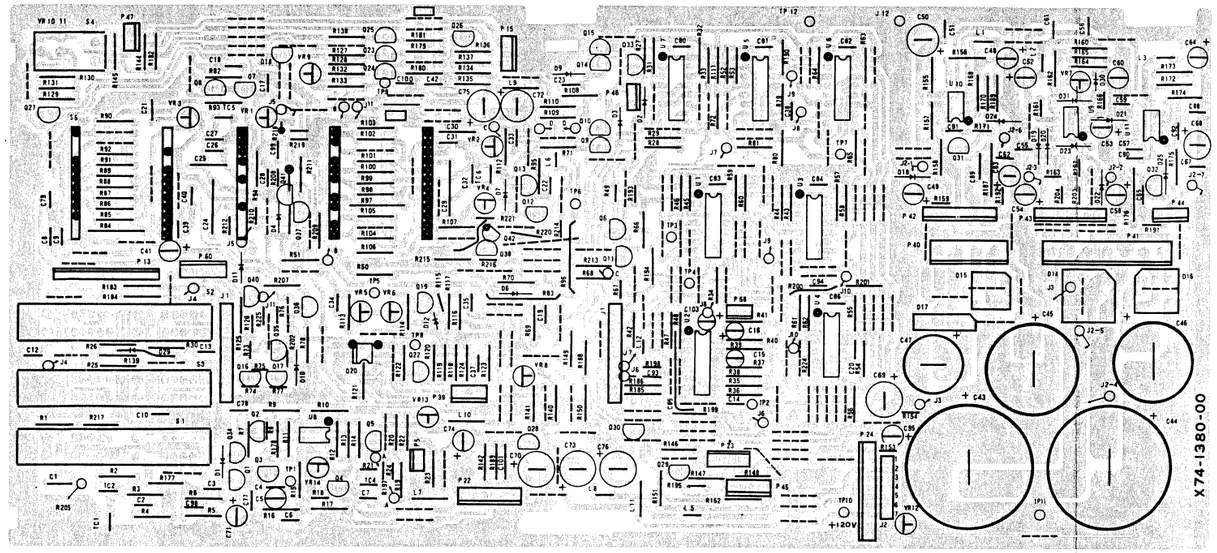


TRIG UNIT (X74-1370-00), (X74-1370-01)

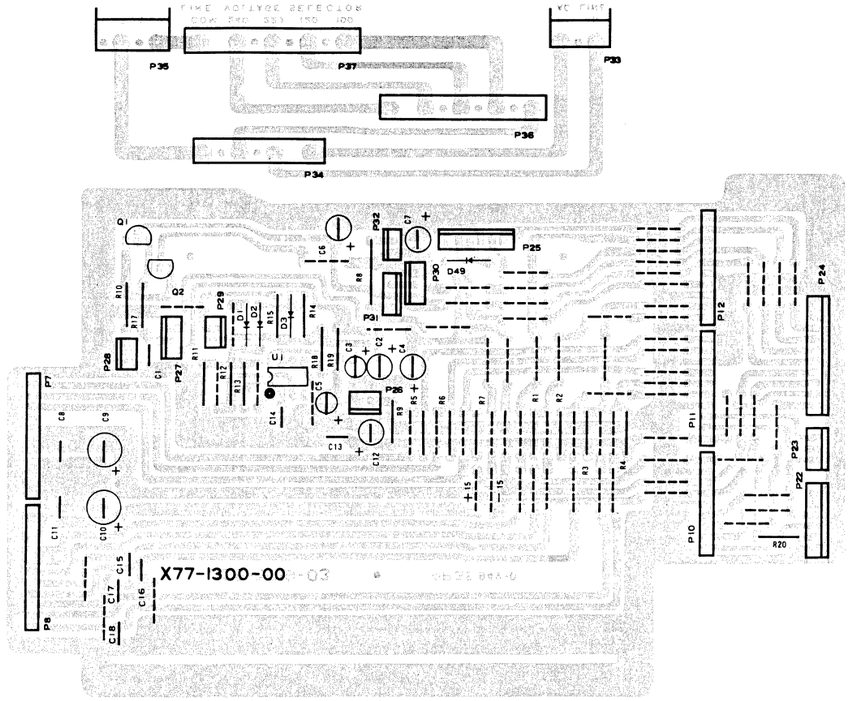


P.C. BOARD

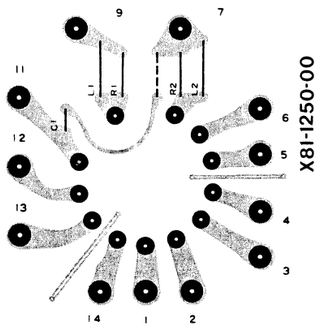
SWEEP UNIT (X74-1380-00), (X74-1380-01)



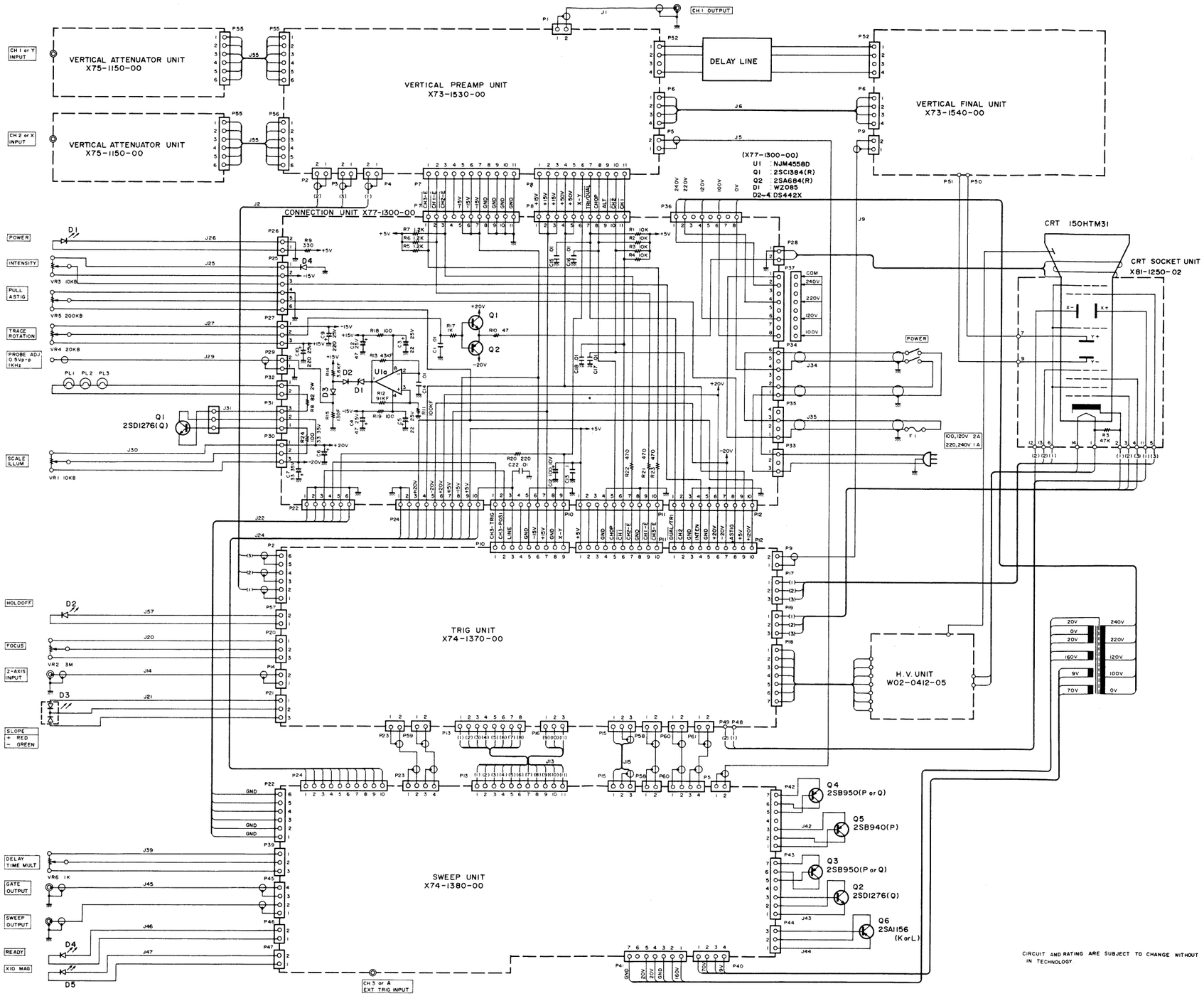
CONNECTION UNIT (X77-1300-00)



CRT UNIT
(X81-1250-02)
(X81-1250-03)



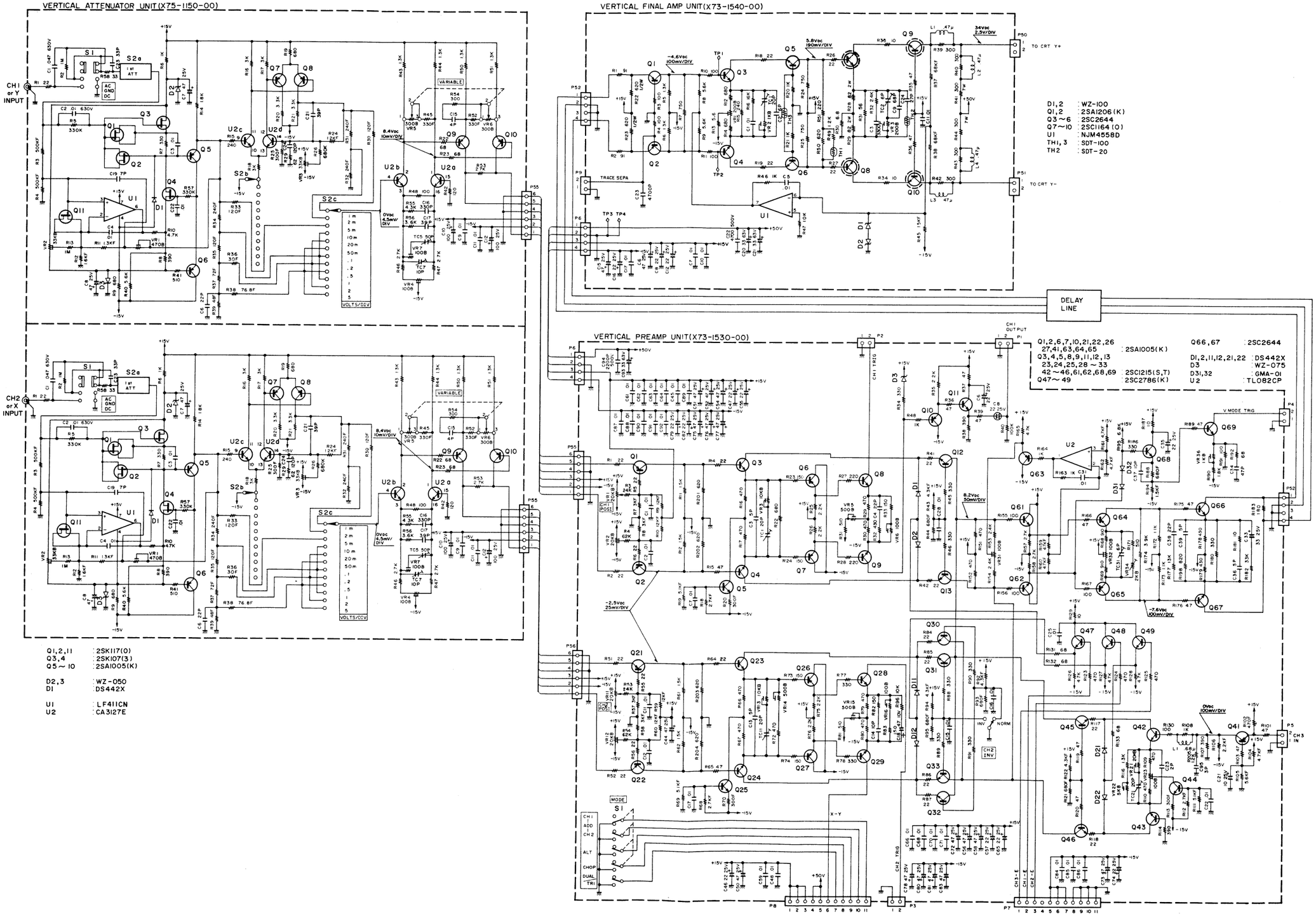
SCHEMATIC DIAGRAM



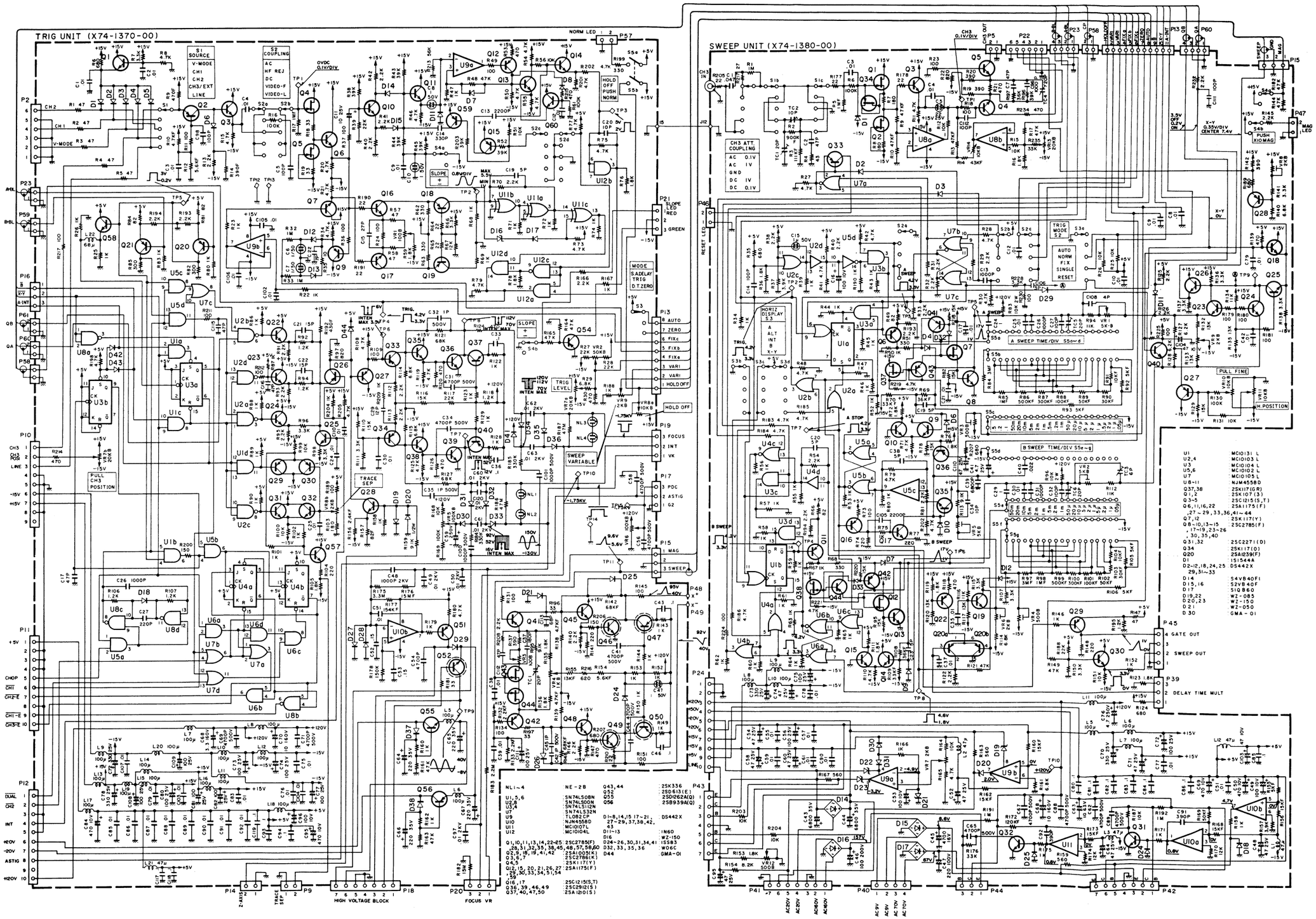
CIRCUIT AND RATING ARE SUBJECT TO CHANGE WITHOUT NOTICE DUE TO DEVELOPMENTS IN TECHNOLOGY.

CS-1060

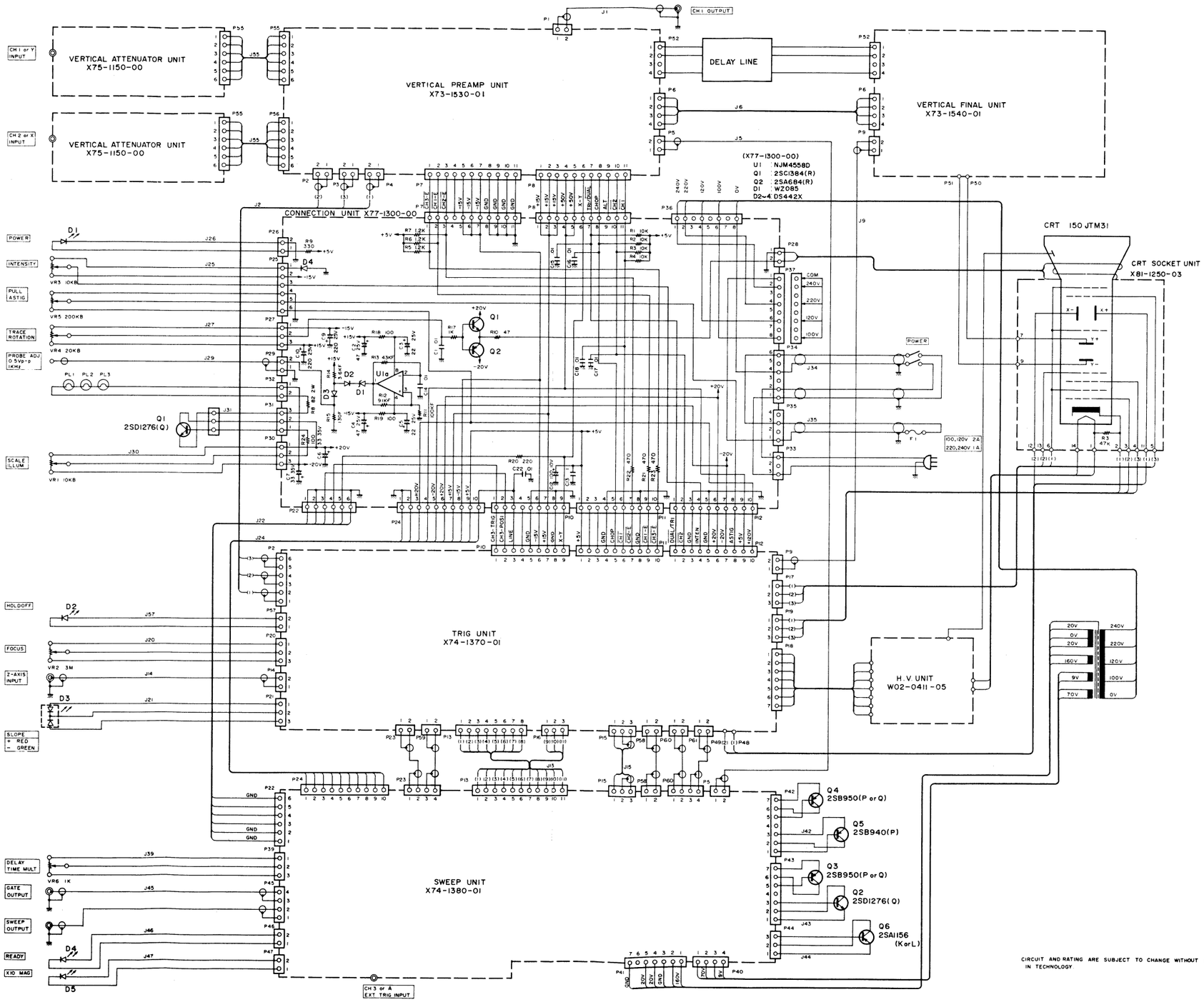
SCHEMATIC DIAGRAM



SCHEMATIC DIAGRAM



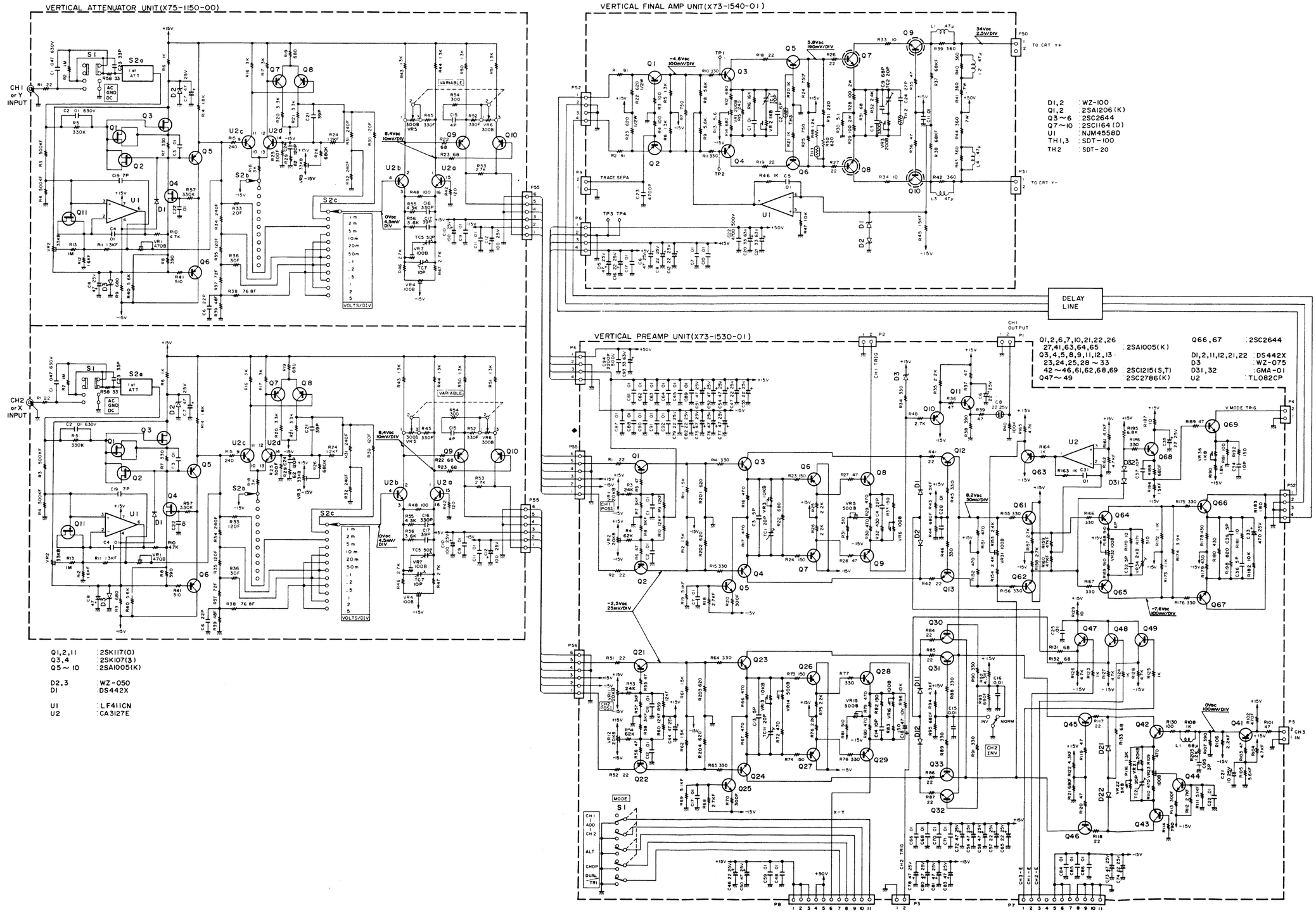
SCHEMATIC DIAGRAM



CIRCUIT AND RATING ARE SUBJECT TO CHANGE WITHOUT NOTICE DUE TO DEVELOPMENTS IN TECHNOLOGY

CS-1040

SCHEMATIC DIAGRAM

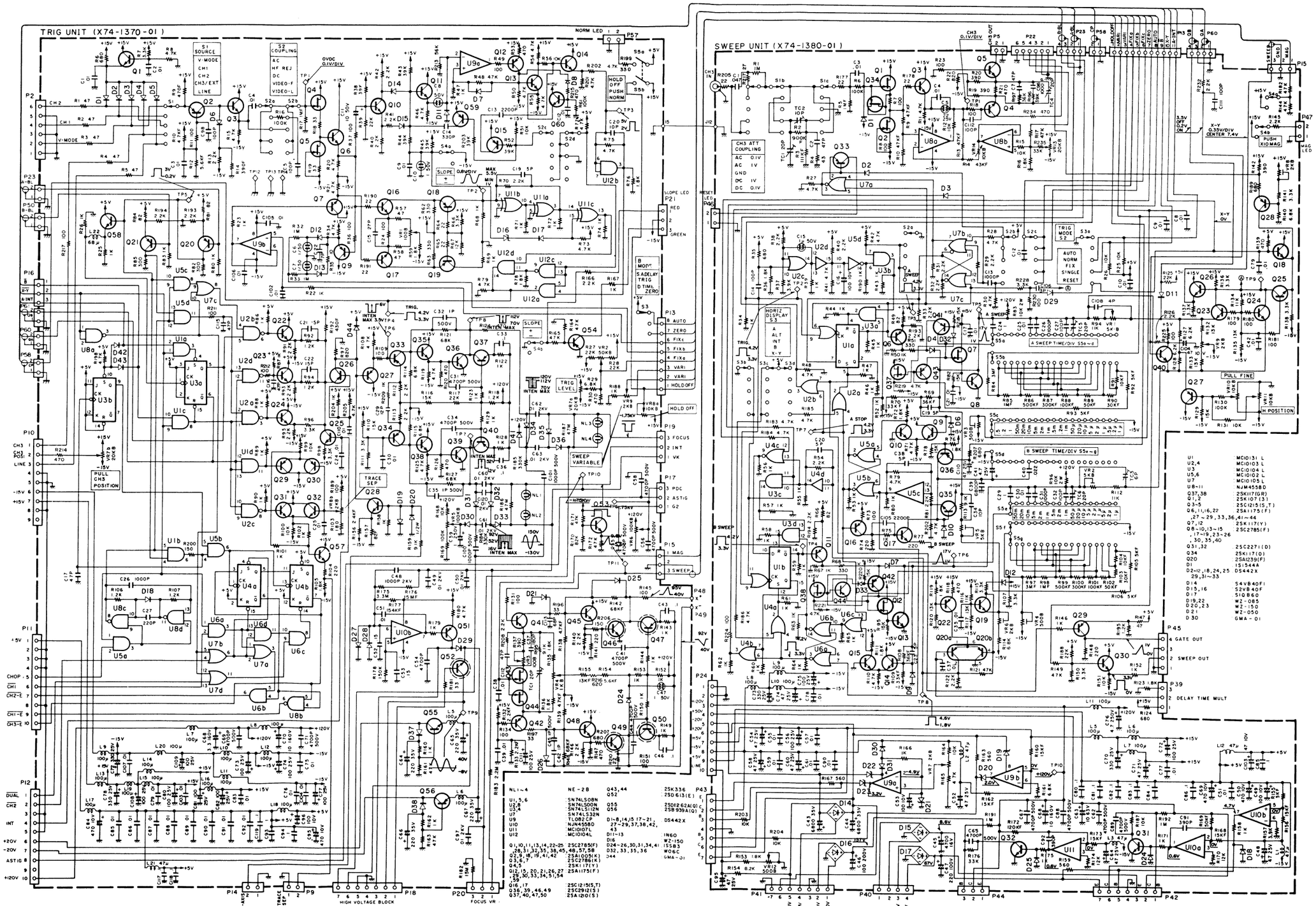


Q1,2,11	2SK117(O)
Q3,4	2SK107(3)
Q5～10	2SA1005(K)
D2,3	WZ-050
D1	DS442X
U1	LF411CN
U2	CA3127E

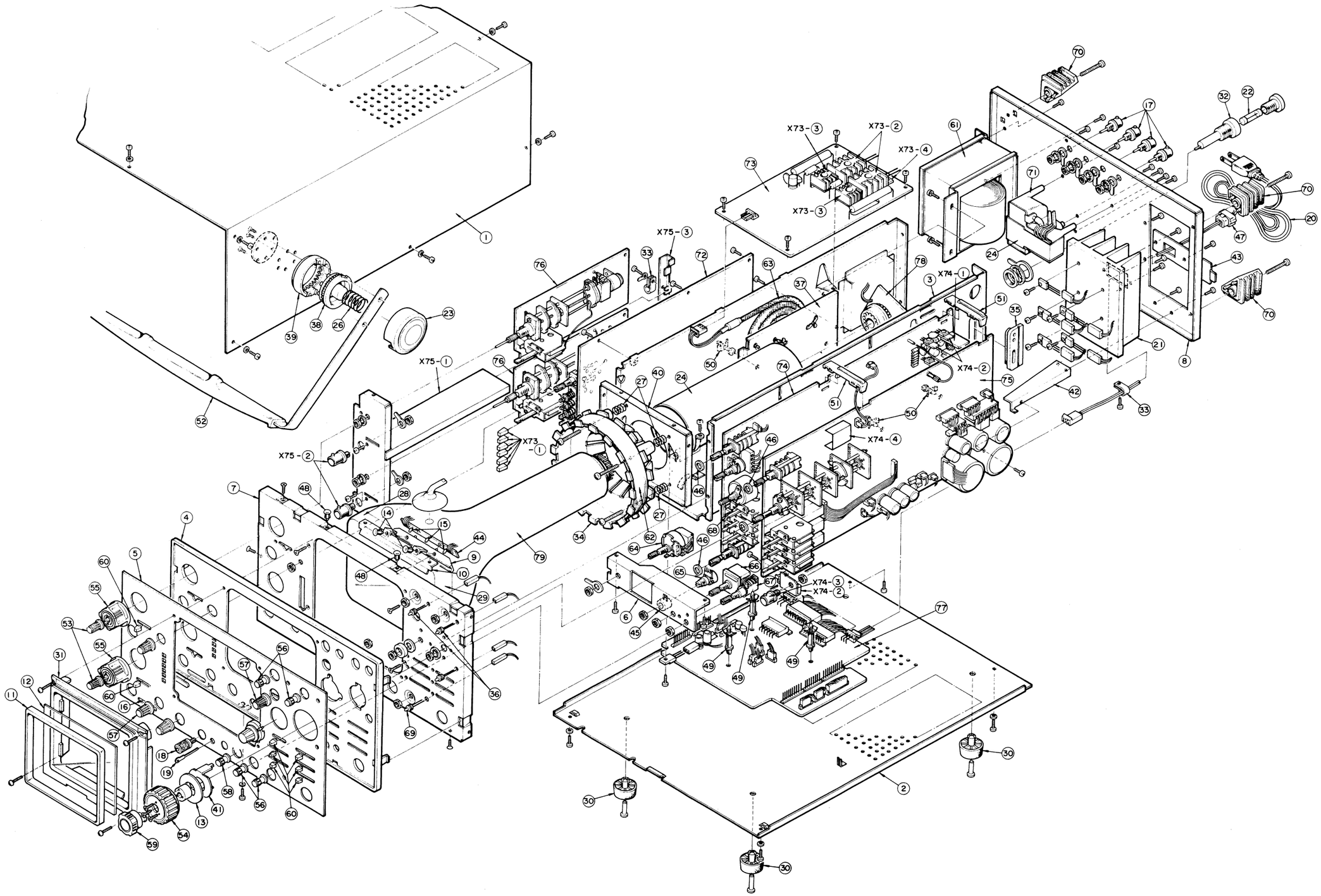
Q1,2,6,7,10,21,22,26 27,41,63,64,65	2SA1005(K)	Q66,67	2SC2644
Q3,4,5,8,9,11,12,13 23,24,25,28～33 42～46,61,62,68,69	2SC1215(S,T)	D1,2,11,12,21,22	DS442X
Q47～49	2SC2786(K)	D3	WZ-075
		D31,32	GMA-01
		U2	TL082CP

D1,2	WZ-100
Q1,2	2SA1206(K)
Q3～6	2SC2644
Q7～10	2SC1164(O)
U1	NJM4558D
TH1,3	SDT-100
TH2	SDT-20

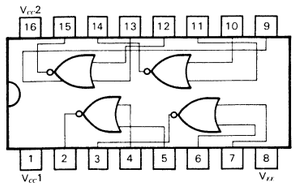
SCHEMATIC DIAGRAM



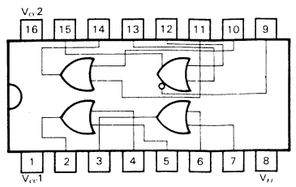
DISASSEMBLY



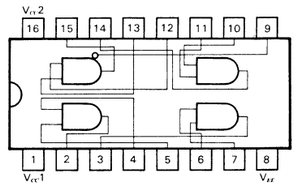
SEMICONDUCTORS



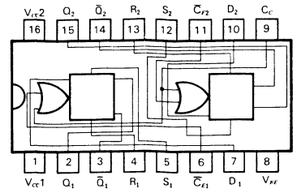
MC10102L



MC10103L



MC10104L



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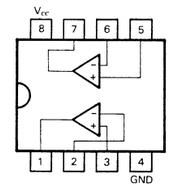

TL082CP
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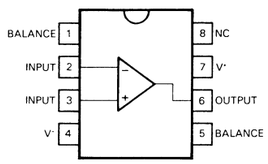
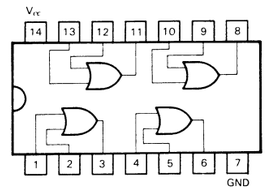


LF411CN



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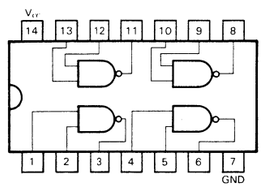

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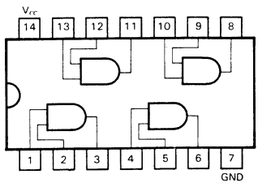

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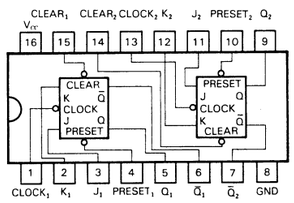
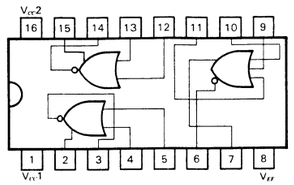
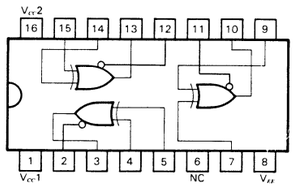

CLEAR$_1$ CLEAR$_2$ CLOCK$_2$ K_2 J_2 PRESET$_2$ Q_2
V_{cc}
16 15 14 13 12 11 10 9
CLEAR $\overline{Q}$ K CLOCK J Q PRESET
PRESET Q J CLOCK K $\overline{Q}$ CLEAR
1 2 3 4 5 6 7 8
CLOCK$_1$ K_1 J_1 PRESET$_1$ Q_1 $\overline{Q}_1$ $\overline{Q}_2$ GND

SN74LS112N



MC10105L



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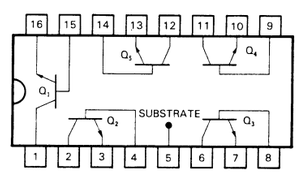

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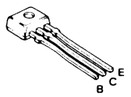
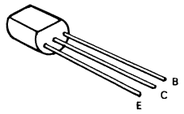
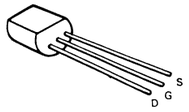


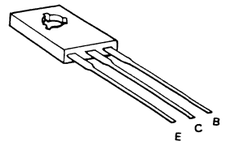
2SA1175 (F)
2SC2785 (F)
2SC2786 (K)



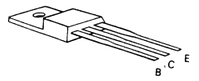
2SA684 (R)
2SA1005 (K)
2SC1215 (S, T)
2SC1384 (R)
2SC2271 (D)



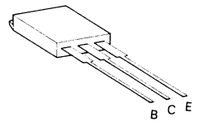
2SK117 (O, Y, GR)



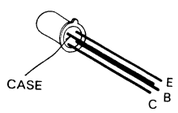
2SC2912 (S)
2SA1210 (S)
2SA1156 (K, L)



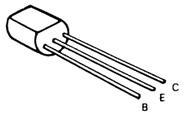
2SB950 (P, Q)
2SB940 (P)
2SD613 (E)
2SD1276 (Q)



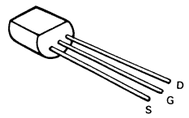
2SB939A (Q)
2SD1262A (Q)



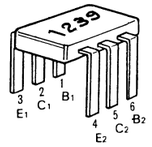
2SC1164 (O)



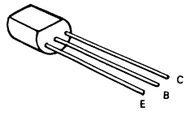
2SC2644



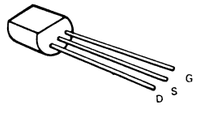
2SK107 (3)



2SA1239 (F)



2SA1206 (K)



2SK336